

National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for **Brush Wellman, Inc.**

Public Notice No.: 02-03-062
Public Notice Date: March 22, 2002
Comment Period Ends: April 22, 2002

OEPA Permit No.: **2IE00000*LD**
Application No.: **OH0002518**

Name and Address of Applicant:

Brush Wellman
14710 W. Portage River South Road
Elmore, Ohio 43416

Name and Address of Facility Where
Discharge Occurs:

Brush Wellman
14710 W. Portage River South Road
Elmore, Ohio
Ottawa County

Receiving Water: **Portage River and Hyde Run**

Subsequent
Stream Network: **Portage River to Lake Erie**

Introduction

Development of a Fact Sheet for NPDES permits is mandated by Title 40 of the Code of Federal Regulations, Section 124.8 and 124.56. This document fulfills the requirements established in those regulations by providing the information necessary to inform the public of actions proposed by the Ohio Environmental Protection Agency, as well as the methods by which the public can participate in the process of finalizing those actions.

This Fact Sheet is prepared in order to document the technical basis and risk management decisions that are considered in the determination of water quality based NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines, existing effluent quality, instream biological, chemical and physical conditions, and the relative risk of alternative effluent limitations. This Fact Sheet details the discretionary decision-making process empowered to the Director by the Clean Water Act and Ohio Water Pollution Control Law (ORC 6111). Decisions to award variances to Water Quality Standards or promulgated effluent guidelines for economic or technological reasons will also be justified in the Fact Sheet where necessary.

Procedures for Participation in the Formulation of Final Determinations

The draft action shall be issued as a final action unless the Director revises the draft after consideration of the record of a public meeting or written comments, or upon disapproval by the Administrator of the U.S. Environmental Protection Agency.

Within thirty days of the date of the Public Notice, any person may request or petition for a public meeting for presentation of evidence, statements or opinions. The purpose of the public meeting is to obtain additional evidence. Statements concerning the issues raised by the party requesting the meeting are invited. Evidence may be presented by the applicant, the state, and other parties, and following presentation of such evidence other interested persons may present testimony of facts or statements of opinion.

Requests for public meetings shall be in writing and shall state the action of the Director objected to, the questions to be considered, and the reasons the action is contested. Such requests should be addressed to:

**Legal Records Section
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049**

Interested persons are invited to submit written comments upon the discharge permit. Comments should be submitted in person or by mail no later than 30 days after the date of this Public Notice. Deliver or mail all comments to:

**Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits Section
P.O. Box 1049
Columbus, Ohio 43216-1049**

The OEPA permit number and Public Notice numbers should appear on each page of any submitted comments. All comments received no later than 30 days after the date of the Public Notice will be considered.

Citizens may conduct file reviews regarding specific companies or sites. Appointments are necessary to conduct file reviews, because requests to review files have increased dramatically in recent years. The first 250 pages copied are free. For requests to copy more than 250 pages, there is a five-cent charge for each page copied. Payment is required by check or money order, made payable to Treasurer State of Ohio.

Location of Discharge/Receiving Water Use Classification

Brush Wellman discharges at River Mile (RMs) 16.75 (006) and 16.7 (009) to the Portage River. The remainder of Brush Wellman's outfalls (002, 003, 004, 005, 007, 008, 011 and 014) discharge via Hyde Run to the Portage River. Hyde Run enters the Portage River at RM 16.55. The approximate location of the facility is shown in Figure 1.

This segment of the Portage River is described by Ohio EPA River Code: 16-001, USEPA River Reach #: 04100010-005, County: Ottawa, Ecoregion: Huron-Erie Lake Plain. The Portage River is presently designated for the following uses: Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Primary Contact Recreation (PCR).

Hyde Run is described by Ohio EPA River Code: 16-008, USEPA River Reach #: 04100010-NA, County: Ottawa, Ecoregion: Huron-Erie Lake Plain. Hyde Run is not presently designated in the Ohio Water Quality Standards.

The Portage River study area is shown in Figure 2.

Facility Description

Brush Wellman is the only fully integrated supplier of beryllium, beryllium oxide, beryllium/copper alloys and beryllium ceramics in the United States. The raw materials used include beryllium oxide, scrap copper and other metallic sources. Processes include: pickling, melting, casting, forming, extruding, annealing, and heat treating. Process wastewater, sanitary wastewater and stormwater is discharged to the Portage River via Hyde Run.

The process operations performed at this facility are classified by the Standard Industrial Classification (SIC) codes 3339, "Primary Smelting and Refining of Non-ferrous Metals" and 3351, "Rolling, Drawing and Extruding of Copper". Discharges resulting from beryllium metal process operations are subject to Federal Effluent Guideline Limitations, contained in Chapter 40 of the Code of Federal Regulations, Part 421, "Non-ferrous Metals Manufacturing" Industrial Category.

Description of Existing Discharge

Brush Wellman has a number of discharge points to Hyde Run and the Portage River. Most of these are controlled discharges which are released only when rainfall or high production causes the lagoon systems to overflow. Hyde Run originates at the Brush Wellman facility and is essentially 100% effluent, except during heavy rain events, when flow in Hyde Run may include some runoff from Brush Wellman's property upstream of their outfalls. A description of the Brush Wellman facility outfalls/stations follows (see Table 1 for summary):

002 - discharge to Hyde Run from #5 lagoon. Process wastewater from the Beryllium Metal Plant is sent to #5 lagoon following ammonia removal by aeration. Calcium chloride and chlorine may be added for the removal of fluoride and cyanide, respectively, if levels warrant. Wastewater from #5 lagoon is reused in the plant, so is infrequently discharged to Hyde Run. Wastewater intended for reuse is pumped to a holding tank until needed. Wastewater from the holding tank may also be discharged to Hyde Run if necessary (see Outfall 014), but usually is not. Brush Wellman's NPDES Permit prohibits any discharge from this outfall when the Portage River flow is below 15 cfs (see station 801).

003 - internal outfall which discharges sanitary sewage to the IWWTP. Sanitary wastewater is treated in a 23,000 gpd extended aeration plant, including final rapid sand filtration, before being discharged to the IWWTP.

004, 005, 007, 008 - stormwater outfalls draining roofs and roads on the beryllium metal side of the Brush Wellman facility. Discharges from these outfalls are pumped to the IWWTP (outfall 011) except during heavy rainfall (the sumps capture the first flush at a minimum). Runoff not pumped to the IWWTP is discharged to Hyde Run.

006 - stormwater outfall draining a relatively small area including: roads on the copper alloy side of the Brush Wellman facility, Portage River South Rd., access roads and ditches along Portage R. So. Rd., and the parking lot. Most of the runoff from these areas is diverted to Brush Wellman's make-up pond, which is used for process water. Runoff that is not diverted to the make-up pond is discharged directly to the Portage River upstream of Hyde Run.

009 - stormwater outfall draining area west of SR 590, fields around the facility on the west side, and one stormwater tile on the copper alloy side of the Brush Wellman facility. Most of the runoff from these areas is pumped to Brush Wellman's make-up pond, which is used for process water, so flow from Outfall 009 should be low and it should not discharge at all during the summer. Runoff that is not diverted to the make-up pond is discharged directly to the Portage River upstream of Outfall 006.

011 - Industrial wastewater treatment plant (IWWTP) discharge to Hyde Run (A.k.a. Brush Creek). Wastewater from the beryllium alloy and beryllium oxide processes is treated by chemical precipitation, flocculation, mixing and neutralization. Lime is added to raise the pH of the wastewater to 9-10 S.U., causing metal hydroxides to settle out. Calcium chloride is used for fluoride removal and a flocculent is added before the waste is sent to the parallel plate clarifier. Sludge from the clarifier is sent to a thickener, then is disposed of off-site. Effluent from the clarifier is neutralized and sent to a holding tank before release to Hyde Run. The IWWTP is a continuous discharge, but can be held back if necessary for up to about 2 months. Brush Wellman's NPDES Permit prohibits any discharge from this outfall when the Portage River flow is below 15 cfs (see station 801).

014 - discharge to Hyde Run from holding tank. Following treatment in #5 lagoon (see Outfall 002), process wastewater is pumped to this holding tank for reuse in the plant. Wastewater may be discharged to Hyde Run if necessary, but usually is not. Brush Wellman's NPDES Permit prohibits any discharge from this outfall when the Portage River flow is below 15 cfs (see station 801).

801 - USGS gaging station on the Portage River at Woodville (04195500). Brush Wellman obtains instantaneous gage height information daily from this station and converts it to river flow(converted to river flow) in order to determine daily discharge limitations for Outfalls 002, 011, and 014.

Outfall 013 is being deleted from the permit because it no longer discharges.

Brush Wellman's current NPDES Permit contains loading limits for the three process discharges (Outfalls 002, 011, and 014 above) that are "tiered" based on the daily flow of the Portage River (see Station 801 above). Process wastewater discharges are permitted only when flow in the Portage River exceeds 15 cfs. Only one of these three outfalls may discharge on any given day, and load limits that maintain the water quality criteria at various flows have been calculated for each outfall. Compliance with loading limits for these "tiers" are tracked under outfalls 041-046. The draft permit includes all of the tiered limits under outfall 099, rather than use separate outfalls for separate tiers.

Tables 2-4 present summaries of analytical results for Brush Wellman's outfalls' effluent samples compiled from the NPDES application, and from bioassay tests done by Ohio EPA. The monthly average PEQ_{avg} and daily maximum PEQ_{max} decision criteria are also included on this table.

Table 5-18 present a summaries of unaltered monthly operation report data for the period January 1995 to December 1999 for the Brush Wellman as well as current permit limits, and monthly average PEQ_{avg} and daily maximum PEQ_{max} values.

Table 19 presents results from acute bioassay tests conducted in accordance with the NPDES permit. Pimephales promelas (fathead minnows), and Ceriodaphnia dubia (water flea) were the test organisms.

Table 1. Sources of wastewater and current treatment systems used at Brush Wellman.

<u>Outfall</u>	<u>Wastewater Source</u>	<u>Treatment</u>
002/014	Beryllium Metal Process	Ammonia stripping, Chemical precipitation, Settling lagoon
003	Sanitary wastewater	Extended aeration, Rapid sand filtration Treatment at 011
004, 008	Stormwater	Treatment at 011 ^a
005, 006, 007	Stormwater	No treatment
009	Stormwater	Settling lagoon
011	Beryllium Alloy Process	Mixing, Flocculation, Chemical precipitation, Neutralization

a: heavy rains may cause these outfalls to discharge directly, without treatment.

Receiving Water Quality / Environmental Hazard Assessment

An assessment of the impact of a permitted point source on the immediate receiving waters includes an evaluation of the available chemical/physical (water column, effluents, sediment, flows), biological (fish and macroinvertebrate assemblages), and habitat data which have been collected by Ohio EPA pursuant to the Five-Year Basin Approach for Monitoring and NPDES Reissuance. Other data may be used provided it was collected in accordance with Ohio EPA methods and protocols as specified by the Ohio Water Quality Standards and Ohio EPA guidance documents. Other information which may be evaluated includes, but is not limited to, NPDES permittee self-monitoring data and effluent and mixing zone bioassays conducted by Ohio EPA, the permittee, or U.S. EPA.

Ohio EPA relies on a tiered approach in attempting to link administrative activity indicators (*i.e.*, permitting, grants, enforcement) with true environmental indicators (*i.e.*, stressor, exposure, and response indicators). Stressor indicators generally include activities which have the potential to degrade the aquatic environment such as pollutant discharges (permitted and unpermitted), land use effects, and habitat modifications. Exposure indicators include whole effluent toxicity tests, tissue residues, and biomarkers, each of which provides evidence of biological exposure to stressor or bioaccumulative agents. Response indicators include the more direct measures of community and population response and are represented here by the biological indices which comprise Ohio EPA's biological criteria. The key is in using the different types of indicators within the roles which are the most appropriate for each. Describing the causes and sources associated with observed impairments relies on an interpretation of multiple lines of evidence including the water chemistry data, sediment data, habitat data, effluent data, biomonitoring results, land use data, and biological response signatures within the biological data itself. Thus the assignment of principal causes and sources of impairment represents the association of impairments (defined by response indicators) with stressor and exposure indicators.

Use attainment is a term which describes the degree to which environmental indicators are either above or below criteria specified by the Ohio Water Quality Standards (WQS; Ohio Administrative Code 3745-1). Assessing use attainment status for aquatic life uses involves a primary reliance on the Ohio EPA biological criteria (OAC 3745-1-07; Table 7-14). These are confined to ambient assessments and apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on multimetric biological indices which include the Index of Biotic Integrity (IBI) and modified Index of Well-Being (MIwb), which indicate the response of the fish community, and the Invertebrate Community Index (IC), which indicates the response of the macroinvertebrate community. Numerical endpoints are stratified by ecoregion, use designation, and stream or river size. Three attainment status results are possible at each sampling location -full, partial, or non-attainment. Full attainment means that all of the applicable indices meet the biocriteria. Partial attainment means that one or more of the applicable indices meet the biocriteria or one of the organism groups reflects poor or very poor performance. An aquatic life use attainment table (see Table 20) is constructed based on the sampling results and is arranged from upstream to downstream and includes the sampling locations indicated by river mile, the applicable biological indices, the use attainment status (*i.e.*, full, partial, or non), the Qualitative Habitat Evaluation Index (QHEI), and comments and observations for each sampling location.

The following summary was compiled from the information and analyses contained in the *Biological and Water Quality Study of the Portage River Basin*, Ohio EPA Technical Report Number MAS/1994-8-7 and in Ohio EPA databases and files. While there have not been more recent surveys than 1994, the data from 1985 and 1994 show that attainment of Ohio's biological criteria has been consistent in the Portage River over time. Ohio EPA is unaware of any changes since 1994 that would adversely affect this attainment.

The WWH use attainment status for the Portage River mainstem was full at all sites upstream and downstream from Brush Wellman (Table 20). Assigning the use attainment status was performed in consideration of the influence of Lake Erie in which case the interim biocriteria used to evaluate Lake Erie estuaries were used. Biological index scores and attainment status for the individual sampling locations are provided in Table 20. Any changes noted in the composition of the fish community in this area were largely the result of the transition from a free-flowing river to the lake influenced estuary effect. The macroinvertebrate community reflected a detectable influence from Brush Wellman (via Hyde Run) within the mixing zone (RM 16.5S) with the increase of several pollution tolerant taxa; however, these changes were not sufficient to result in non-attainment of the WWH criteria for the ICI. There was no evidence of acute toxicity in any of the biological results.

Chemical water quality impacts from the Brush Wellman discharges were limited to elevated nitrate-N and copper immediately downstream from Hyde Run. Volatile and semi-volatile organic compounds were detected in effluent and some mixing zone samples at concentrations well below water quality criteria. A number of chlorinated pesticides were also detected, but these occurred both upstream and downstream. Extremely elevated levels of PCBs and PAHs were found in bottom sediments of the mainstem at Hyde Run (Brush Wellman mixing zone) and PCBs persisted at elevated levels downstream. Copper and beryllium concentrations in bottom sediment of the mixing zone were also elevated to levels expected to have adverse effects on benthic organisms. These were localized as concentrations declined dramatically downstream.

Compared to results obtained in a previous Ohio EPA survey in 1985, the 1994 results show slightly improved water quality and comparatively unchanged biological performance in the Portage River mainstem in the vicinity of Brush Wellman. The use attainment status during both years was essentially unchanged with any minor differences likely due to changing conditions within the transitional zone from free-flowing river to Lake Erie influenced estuarine habitat. Also, effluent pollutant concentrations for this period show that the main outfalls have either had steady pollutant concentrations (outfall 011) or slightly declining levels (outfall 002).

Development of Water-Quality-Based Effluent Limits

Determining appropriate effluent concentrations is a multiple-step process in which parameters are identified as likely to be discharged by a facility, evaluated with respect to Ohio water quality criteria, and examined to determine the likelihood that the existing effluent could violate the calculated limits.

Parameter Selection

Effluent data for the Brush Wellman were used to determine what parameters should undergo wasteload allocation. The sources of effluent data are as follows:

Self-monitoring data (LEAPS)	January 1996 through June 2001
2C data	
Ohio EPA data (compliance)	March 1999

The effluent data were checked for outliers and the following values were eliminated from the data set:
011 - silver < 10 **014** - silver < 8 **041** - copper <25, nickel <22 **042** - nickel <30, silver <7
043 - copper <45 **044** - TDS <20 mg/l, copper <50 **045** - TDS <1100 mg/l, nickel <25, silver <10
046 - TDS <4500 mg/l (all values in ug/l unless otherwise noted).

The average and maximum projected effluent quality (PEQ) values are presented in Table 22. For a summary of the screening results, refer to the parameter groupings at the end of this section.

Wasteload Allocation

For those parameters that require a wasteload allocation (WLA), the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. The applicable waterbody uses for this facility's discharge and the associated stream design flows are as follows:

Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia-N	Average	Summer/winter 30Q10
Agricultural Water Supply		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow
Wildlife		Annual 90Q10

Allocations are developed using a percentage of stream design flow (as specified in Table 24).

The data used in the WLA are listed in Tables 23 and 24. The wasteload allocation results to maintain all applicable criteria are presented in Tables 25 and 26.

The permit for Brush Wellman contains loading limits based on flows measured at the USGS gage on the Portage River at Woodville (04195500). Therefore, in addition to the "typical" effluent limits to maintain water quality criteria described above (and presented in Table 25), effluent loadings that maintain the water quality criteria at various stream flows have been calculated. Effluent loading limits for each flow tier contained in the current permit are provided in Table 26.

Because Brush Wellman has operated under the tiered permit for a number of years, the typical long-term average flow data is highly variable and a reliable average effluent flow value is not available. Also, numerous scenarios for discharge are possible from outfall combinations. Finally, the concentrations of pollutants in the storm water are high enough to trigger a WLA regardless of the process waste concentrations. For all these reasons, the WLA for Brush Wellman is essentially a determination of allowable effluent load at this particular location on the Portage River and should be considered a load for the *total* facility, including all outfalls and possible sources.

The allowable loadings for each flow tier are allocations to maintain outside-mixing-zone WQS. Inside-mixing-zone WQS to prevent rapid lethality also apply to the discharge.

Reasonable Potential

The preliminary effluent limits are the lowest average WLA (average PEL) and the maximum WLA (maximum PEL). To determine the reasonable potential of the discharger to exceed the WLA for each parameter, the facility's effluent quality is compared to the preliminary effluent limits. The average PEQ value (Table 22) is compared to the average PEL, and the maximum PEQ value is compared to the maximum PEL. Based on the calculated percentage of the respective average and maximum comparisons, the parameters are assigned to "groups", as listed in Table 27.

In this case, a defined effluent flow for each outfall is not available, so total allowable effluent loads are calculated for the Brush Wellman facility. Because groupings are based on comparisons of

concentrations, the calculation of total allowable loads prevents the grouping of the allocated parameters (groups 3, 4, and 5). The groupings are listed in Table 27.

Whole Effluent Toxicity

Whole effluent toxicity or "WET" is the total toxic effect of an effluent on aquatic life measured directly with a toxicity test. Acute WET measures short term effects of the effluent while chronic WET measures longer term and potentially more subtle effects of the effluent. WET values are then compared to a calculated allowable effluent toxicity "AET" value. The allowable effluent toxicity (AET) is a factor considered in evaluating whole effluent toxicity. The AET calculations are similar to those for aquatic life criteria (using the chronic toxicity unit (TU_c) and 7Q10 for average and the acute toxicity unit (TU_a) and 1Q10 for maximum). Complicated by the presence of multiple outfalls, AET values to protect outside-mixing zone WQS cannot be calculated without defined effluent flow values. To meet inside-mixing-zone maximum narrative criteria, the acute AET would be 1.0 TU_a.

The chronic toxicity unit (TU_c) is defined as 100 divided by the IC₂₅:

$$TU_c = \frac{100}{IC_{25}}$$

This equation applies outside the mixing zone for warmwater, modified warmwater, exceptional warmwater, coldwater, and seasonal salmonid use designations except when the following equation is more restrictive (Ceriodaphnia dubia only):

$$TU_c = \frac{100}{\text{geometric mean of NOEC and LOEC}}$$

The acute toxicity unit (TU_a) is defined as 100 divided by the LC50 for the most sensitive test species:

$$TU_a = \frac{100}{LC50}$$

This equation applies outside the mixing zone for warmwater, modified warmwater, exceptional warmwater, coldwater, and seasonal salmonid use designations.

Effluent Limits/Hazard Management Decisions

The listing in Tables 25-27 reflect the hazard assessment done according to WLA procedures. Tables 28-39 shows the draft NPDES limits for Brush Wellman.

The limits for all of the outfalls are based on either treatment technology or water quality standards. Treatment technology standards are established either by federal effluent guidelines or Best Professional Judgment (BPJ). Water quality based limits are loadings to meet ambient WQS, or concentrations necessary to maintain inside-mixing-zone maximum (IMZM) WQS.

Many of the permit limits are being carried over into this draft permit. Those limits that are more restrictive than the previous permit are from the Great Lakes Water Quality Guidance Rule, 40 CFR 132, and related state requirements. For loading limits at calculated outfall 099, the more restrictive limits are caused by: (1) the use of 25% of the Portage River for mixing, as opposed to 33% used in previous

permits, and (2) more restrictive water quality criteria related to the GLI, and promulgated by Ohio EPA in October 1997. The 25% default mixing proportion is a requirement of OAC 3745-2-05(A)(2)(d).

The use of IMZM concentration limits is based on a Memorandum of Agreement between Ohio EPA and U.S. EPA on the implementation of GLI standards (Attachment B). Ohio's WQS have since 1990 included a clause that allows Ohio EPA to use the biological criteria to set water-quality-based limits that may be less restrictive than chemical-specific limits from the WLA. For example, if a discharger to a stream that is attaining the biological criteria may be granted an ammonia limit based on their existing loadings, rather than the wasteload allocation, because the existing loadings are associated with attainment of the aquatic life use. This approach has been used to set concentration-based limits for Brush Wellman in past permits. While effluent limits have been higher than IMZM standards, the effluent quality has been associated with stream use attainment (and non-toxic near-field conditions) since at least 1985, and therefore effluent limits reflect the existing discharge quality. The main reason for this apparent anomaly is that Brush discharges intermittently, and is not permitted to discharge during low flow periods of the Portage River.

U.S. EPA has never specifically authorized this approach to setting water-quality-based limits. The GLI rule reflects this view by requiring states to adopt the policy of independent applicability. This policy requires that chemical, biological and toxicity assessments be conducted independently, with data from one of these sources not allowed to influence decisions made under the others. To obtain U.S. EPA approval for Ohio's GLI rules, Director Jones signed a Memorandum of Agreement with U.S. EPA that states that the biocriteria narrative rule will not be used to develop alternative limits for GLI pollutants, which include all metal parameters and whole effluent toxicity. Because of the MOA, the permit contains IMZM-based limits for metals where the PEQmaximum values exceeds IMZM.

Effluent limits for ammonia-N and total dissolved solids (TDS) were assessed using the biocriteria narrative. These are not pollutants regulated under the GLI, and are not covered by the MOA. Ohio EPA's surveys from 1985 and 1994 show that attainment of Ohio's biological criteria has been consistent in the Portage River over time. Brush's pollutant concentrations have been stable or decreasing over time. Ohio EPA does not expect any other conditions to have changed that would indicate a degradation of biological quality in the Portage River.

Limits proposed for pH at all outfalls, and fecal coliform at outfall 011 are based on Water Quality Standards (OAC 3745-1).

The loading limits for outfalls 002/014 are treatment-technology-based limits for the Non-ferrous Metals Industry, found in 40 CFR Part 421, are based on the pounds of pollutant allowed to be discharged per million pounds of production. Because of Brush's ability to hold wastewater and discharge only when there is sufficient flow in the Portage River, these limits are applied on an annual basis, rather than the 30-day/daily basis used for continuous discharges. The plant production rates used are the annual rates for 1996-2000. Limits are calculated as follows: TSS limits (kg./day) = BPT (lbs./million lbs.) x production (million pounds/year) / 2.2 pounds/kilogram, or (for beryllium oxide production)

$$\text{TSS limit} = 5142 \text{ lbs. per } 10^6 \text{ lbs.} \times 0.0895524 \text{ } 10^6 \text{ lbs per year.} / 2.2 \text{ lbs. per kg.} = 209.3 \text{ kg/year.}$$

The effluent guideline calculations for all regulated pollutants are listed in Attachment A of this fact sheet.

The effluent guideline allowances are less than those in the current permit, due to decreased production and the deletion of an allowance for beryllium chip treatment, which Brush appears to have ceased doing.

The concentration limits for outfalls 002 and 014 are based on current permit conditions or IMZM. The current limits for ammonia and TDS were screened against limits associated with the biocriteria narrative (long-term PEQmax - 1985-2001 data), and were found to be adequate to maintain WQS.

For outfall 003, limits proposed for total suspended solids (TSS) and carbonaceous biochemical oxygen demand (CBOD₅) are based on the design of the WWTP.

The limits for the stormwater outfalls (004-009) contain IMZM-based limits for beryllium and/or copper where effluent PEQs exceeded the IMZM. New monitoring requirements have also been included for metals that appear elevated in comparison to other discharges. This data will help determine if exceedances of IMZM are occurring, or if concentrations are high enough to cause toxicity.

For outfall 011, the concentration limits are based on existing permit conditions or IMZM. The TDS limits were screened against the biocriteria narrative requirements (again, using long term PEQmax), and new limits are needed. The current limits are significantly higher than those associated with biocriteria attainment. The draft limits are based on 1989-2001 PEQ data, with a 10% factor added to account for analytical variability. In these calculations, a few data points less than 4000 mg/l were eliminated as outliers. This left 391 values, and PEQs of 12252 mg/l avg. and 14437 mg/l max.

Additional monitoring requirements proposed at the final effluent, influent, upstream/downstream and sludge stations are included for all facilities in Ohio and vary according to the type and size of the discharge. In addition to permit compliance, this data is used to assist in the evaluation of effluent quality and treatment plant performance and for designing plant improvements and conducting future stream studies.

Whole Effluent Toxicity Reasonable Potential

AET calculations are similar to aquatic life criteria wasteload allocation calculations. The $Q_{7,10}$ and chronic toxicity unit (TU_c) are used to calculate the average allowable AET and the $Q_{1,10}$ and acute toxicity unit (TU_a) are used to calculate the maximum allowable AET. For the Brush Wellman WWTP, the acute AET is 1.0 TU_a . It is not possible to calculate a chronic AET without an effluent flow rate.

For dischargers in the Lake Erie Basin, toxicity is assessed by comparing this AET value to a PEQ value calculated from the effluent toxicity data available. If the PEQ is greater than the AET, toxicity limits are needed in the permit. This procedure was put in place by USEPA's promulgation of toxicity reasonable potential rules for Ohio on August 4, 2000. These rules replaced Ohio's rules for dischargers in the Lake Erie basin.

The one available effluent toxicity test for outfall 011 indicated that the acute AET was not being achieved. The PEQ calculated from this test result (using the statistical multiplier of 6.2) is 15.2 TU_a . Based on this result, a toxicity limit and compliance schedule are needed in the permit. Because of the chemical similarity between outfall 011, and outfalls 002/014, toxicity limits are being proposed for all three discharge points.

Based on the reported chemical data for outfalls 002, 011 and 014, it is likely that dissolved solids, and for 002/014 ammonia, are among the toxic agents in the discharge. If Brush could establish through TIE studies that these were the only two toxicants in these outfalls, appropriate limits for TDS and/or ammonia could be used in place of acute toxicity limits.

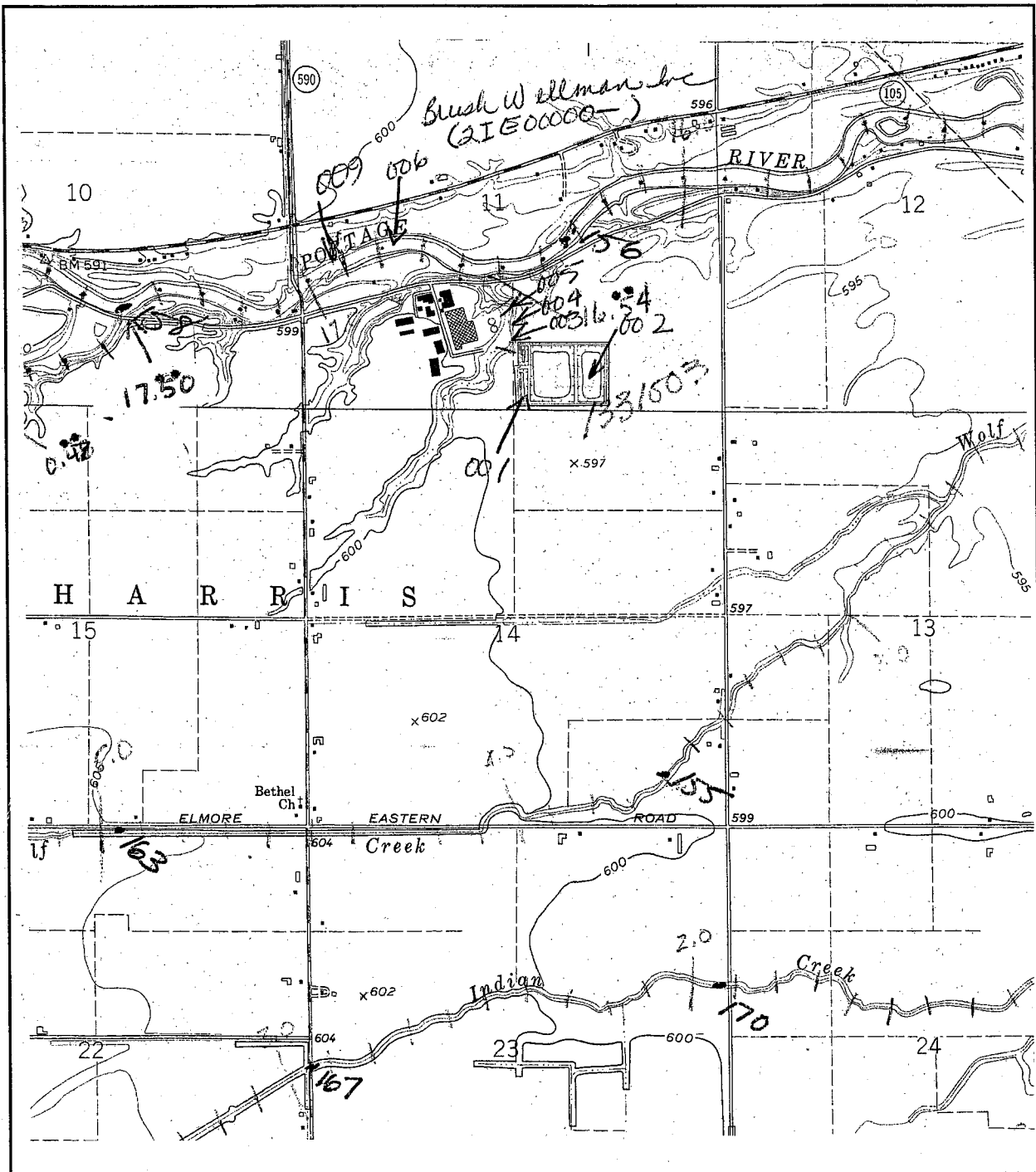


Figure 1. Approximate location of Brush Wellman.

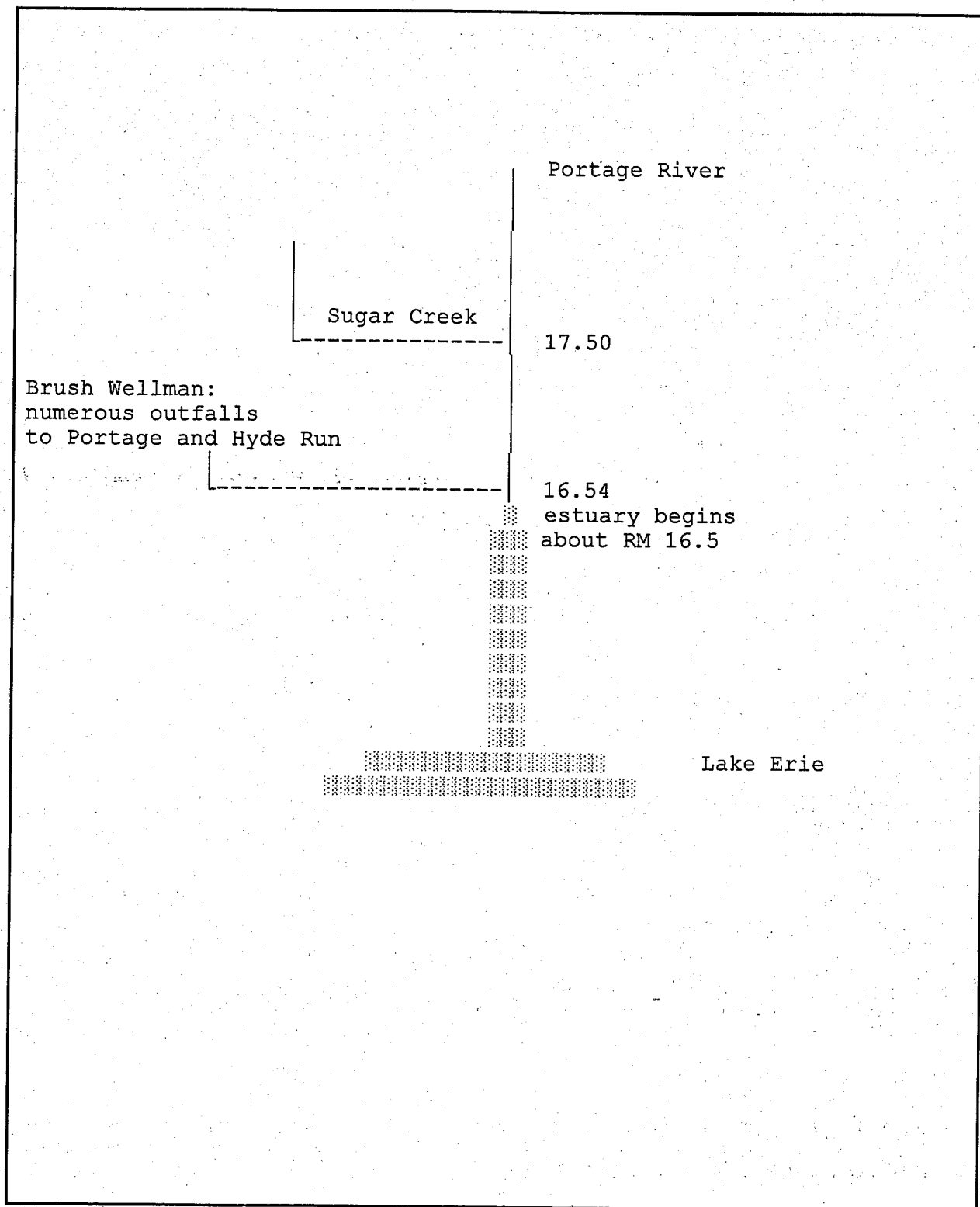


Figure 2. Portage River Study Area.

Table 2. Effluent Characterization and Decision Criteria

Summary of analytical results for Brush Wellman outfalls 2IE00000002 and 2IE00000011, and monitoring station 2IE00000900. All values are in µg/l unless otherwise indicated. 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed.

PARAMETER	Outfall 002			Ohio EPA 03/09/99	Outfall 011			Ohio EPA 03/09/99	Station 900		
	Brush Application Form 2C				Brush Application Form 2C				Brush Application From 2C		
	n	mean	max.		n	mean	max.		n	mean	max.
BOD ₅ mg/l	1	—	8	<2.0	1	—	5.0	NA	1	—	<4
COD mg/l	1	—	280	60	1	—	150	NA	1	—	140
TSS mg/l	4	12	37	6	42	17	46	NA	1	—	<5
TDS mg/l	NA	NA	NA	8970	NA	NA	NA	4680	NA	NA	NA
Oil&grease mg/l	NA	NA	NA	3.14	42	5	9	NA	1	—	<5
Ammonia-N mg/l	4	29	41	<0.05	42	3.3	5.7	1.44	12	1.2	3.4
NO3/NO2-N mg/l	1	—	5	396	1	—	440	197	12	190	538
Nitrite-N mg/l	NA	NA	NA	9.68	NA	NA	NA	3.54	NA	NA	NA
TKN mg/l	NA	NA	NA	<0.2	1	—	2.8	NA	1	—	111
Phosphorus mg/l	1	—	<0.02	0.24	12	0.12	0.24	NA	1	—	<0.02
Fluoride mg/l	4	13	16	8.94	48	10	15	NA	1	—	5.5
Chlorine, T.R. mg/l	1	—	0.02	NA	1	—	<0.05	NA	1	—	0.02
Aluminum	1	—	110	370	1	—	540	230	1	—	170
Antimony	1	—	9.6	NA	1	—	<3.0	NA	1	—	<3
Arsenic	1	—	35	<2.0	1	—	18	<2.0	1	—	5.4
Barium	1	—	<10	48	1	—	39	55	1	—	25
Beryllium	4	20	30	19.9	42	50	90	59.5	12	48	90
Boron	1	—	240	NA	1	—	110	NA	1	—	78
Cadmium	4	1.0	1.0	0.7	42	10	10	0.7	1	—	<0.5
Chromium	4	20	40	<30	42	10	30	<30	1	—	<20
Cobalt	1	—	12	NA	1	—	<10	NA	1	—	<10
Copper	1	82	160	50	42	100	180	84	12	88	120
Iron	1	—	57	116	1	—	<40	115	1	—	85
Manganese	1	—	34	14	1	—	22	65	1	—	59
Mercury	1	—	<0.2	0.208	1	—	<0.2	NA	1	—	0.2
Molybdenum	1	—	360	NA	1	—	150	NA	1	—	48
Nickel	1	—	150	<40	42	58	140	<40	12	29	110

Table 2. continued.

PARAMETER	Outfall 002			Ohio EPA 03/09/99	Outfall 011			Ohio EPA 03/09/99	Station 900		
	Brush Application Form 2C				Brush Application Form 2C				Brush Application From 2C		
	n	mean	max.		n	mean	max.		n	mean	max.
Potassium	NA	NA	NA	15000	NA	NA	NA	7000	NA	NA	NA
Selenium	1	—	33	<4	1	—	49	<2.0	1	—	16
Silver	4	<10	<10	<0.2	42	14	38	NA	1	—	<10
Strontium	NA	NA	NA	7360	NA	NA	NA	5670	NA	NA	NA
Zinc	1	—	20	11	1	—	50	<10	12	30	90
Cyanide, T.	4	100	400	5.78*	1	—	7	<5*	12	<10	<10
Bromochloromethane	NA	NA	NA	2.59	NA	NA	NA	0.74	NA	NA	NA
Bromoform	1	—	<5.0	3.09	1	—	<5.0	1.11	1	—	<5.0
1,2-Dichloroethane	1	—	<5.0	0.87	1	—	<5.0	<0.5	1	—	<5.0
cis-1,2-Dichloroethylene	NA	NA	NA	<0.5	NA	NA	NA	1.16	NA	NA	NA
Tetrachloroethylene	1	—	<5.0	1.2	1	—	<5.0	9.03	1	—	<5.0
PCBs	1	—	ND	NA	1	—	ND	ND	36	ND	ND

* - free cyanide result

Table 3. Effluent Characterization and Decision Criteria

Summary of analytical results for Brush Wellman outfalls 2IE00000004, 2IE00000005 and 2IE00000006. All data is from the company's Application Form 2C. All values are in µg/l unless otherwise indicated. 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed.

PARAMETER	Outfall 004			Outfall 005			Outfall 006		
	n	mean	max.	n	mean	max.	n	mean	max.
COD mg/l	1	—	<20	1	—	50	1	—	80
TSS mg/l	1	—	6	1	—	32	1	—	24
Oil&grease mg/l	1	—	5	1	—	<5	1	—	<5
Ammonia-N mg/l	1	—	0.8	1	—	0.5	1	—	0.1
NO3/NO2-N mg/l	NA	NA	NA	1	—	2.2	NA	NA	NA
TKN mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride mg/l	?	—	10	3	—	5	7	0.7	5.0
Chlorine, T.R mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	1	—	120	1	—	330	1	—	1800
Barium	1	—	26	NA	NA	NA	1	—	75
Beryllium	1	—	65	5	750	3600	10	25	150
Boron	1	—	<50	1	—	<50	1	—	<50
Cadmium	1	—	<0.5	1	—	<0.5	1	—	<0.5
Cobalt	1	—	<10	1	—	<10	1	—	<10
Copper	1	—	110	?	540	860	10	69	120
Iron	1	—	290	1	—	840	1	—	2800
Lead	1	—	3.4	1	—	12	1	—	3.5
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium	1	—	<30	1	—	<30	1	—	110
Zinc	1	—	320	1	—	220	1	—	55

Table 4. Effluent Characterization and Decision Criteria

Summary of analytical results for Brush Wellman outfalls 2IE00000007, 2IE00000008 and 2IE00000009. All data is from the company's Application Form 2C. All values are in µg/l unless otherwise indicated. PT = data from, pretreatment program reports; 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results.

PARAMETER	Outfall 007			Outfall 008			Outfall 009		
	n	mean	max.	n	mean	max.	n	mean	max.
COD mg/l	1	—	42	1	—	120	1	—	42
TSS mg/l	1	—	7	1	—	47	1	—	19
Oil&grease mg/l	1	—	5	1	—	8	1	—	<5
Ammonia-N mg/l	1	—	0.3	1	—	0.8	1	—	<0.5
NO3/NO2-N mg/l	1	—	5.1	NA	NA	NA	1	—	1.7
TKN mg/l	NA	NA	NA	NA	NA	NA	1	—	0.8
Phosphorus mg/l	NA	NA	NA	NA	NA	NA	1	—	0.12
Fluoride mg/l	7	0.16	5.0	6	4	5	4	0.4	0.7
Chlorine, T.R mg/l	NA	NA	NA	NA	NA	NA	1	—	0.02
Aluminum	1	—	210	1	—	1200	1	—	550
Barium	1	—	90	1	—	89	1	—	86
Beryllium	9	44	130	1	—	1400	7	11	20
Boron	1	—	55	1	—	<50	1	—	<50
Cadmium	1	—	<0.5	1	—	4.3	1	—	<0.5
Cobalt	1	—	<10	1	—	20	1	—	<10
Copper	10	230	720	1	—	460	6	27	60
Iron	1	—	330	1	—	1600	1	—	680
Lead	1	—	<2.0	1	—	7.2	1	—	<2.0
Manganese	NA	NA	NA	NA	NA	NA	1	—	47
Titanium	NA	NA	NA	1	—	150	NA	NA	NA
Zinc	1	—	150	1	—	150	1	—	16

Table 5. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000002. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE00000) OUTFALL=002

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = NOV96 THRU APR98	N	50 PCTL	95 PCTL	RANGE	N	DECISION CRITERIA	
			30 DAY	DAILY							PEQ_{avg}	PEQ_{max}
AMMONIA NH3-N	NOV-APR	MG/L	--	133	4		37	128	30-128			
		KG/DAY	--	1972	4		52.324	79.125	42.354-79.125			
BERYLIUM TOT REC	ANNUAL	UG/L	--	801	4		120	180	100-180			
		KG/DAY	--	12.5	4		0.05314	0.25412	0.0509-0.2541			
CADMIUM TREC 0.001	ANNUAL	UG/L	Monitor		4		0	10	0-10			
		KG/DAY	--	--	4		0	0.02139	0-0.0214			
CHROMIUM TOT 0.01	ANNUAL	UG/L	--	46	2		10	10	10-10			
		KG/DAY	--	5.05	2		0.01412	0.02139	0.0141-0.0214			
CHROMHEX TOT 0.001	ANNUAL	UG/L	--	--	2		2	3	2-3			
		KG/DAY	--	--	2		0.00424	0.00428	0.0042-0.0043			
CHROMIUM CR,TOT	ANNUAL	UG/L	--	46	2		10	20	10-20			
		KG/DAY	--	5.05	2		0.00409	0.00848	0.0041-0.0085			
CHROMIUM HEX-DIS	ANNUAL	UG/L	--	17	2		3	6	3-6			
		KG/DAY	--	--	2		0.00123	0.00254	0.0012-0.0025			
CONDUIT FLOW	ANNUAL	MGD	Monitor		25		0.126	0.554	0.054-0.565			
COPPER TOT REC	ANNUAL	UG/L	--	243	2		80	100	80-100			
		KG/DAY	--	20.5	2		0.03391	0.04088	0.0339-0.0409			
COPPER TREC 0.001	ANNUAL	UG/L	--	243	2		180	200	180-200			
		KG/DAY	--	20.5	2		0.28236	0.38493	0.2824-0.3849			
CYANIDE FREE	ANNUAL	MG/L	Monitor		4		0	0	0-0			
CYANIDE TOT	ANNUAL	MG/L	--	0.20	2		0	0	0-0			
		MG/L	--	2.7	2		0	0	0-0			
FLUORIDE F,TOT	ANNUAL	MG/L	--	35	4		13	16	11-16			
		KG/DAY	--	674	4		5.3141	32.078	4.6631-32.078			
LEAD TOT REC	ANNUAL	UG/L	--	--	1		0	0	0-0			
NICKEL TREC 0.01	ANNUAL	UG/L	Monitor		4		50	130	30-130			
		KG/DAY	--	--	4		0.05314	0.07059	0.0509-0.0706			
PH	ANNUAL	S.U.	6.5 to 9.5		4		7.6*	9.5	7.6-9.5			
PHOS-T P-WET	ANNUAL	MG/L	Monitor		4		0.01	0.05	0-0.05			
		KG/DAY	--	--	4		0.00409	0.07059	0-0.0706			
RESIDUE DIS-105C	ANNUAL	MG/L	--	21560	4		5510	5590	3810-5590			
		KG/DAY	--	--	4		2337.9	11783	2285.1-11783			
RESIDUE TOT NFLT	ANNUAL	MG/L	--	41	4		1	5	1-5			
		KG/DAY	--	656	4		0.42392	7.059	0.4088-7.059			
SILVER TOT REC	ANNUAL	UG/L	--	42	4		10	14	10-14			
		KG/DAY	--	--	4		0.00424	0.02994	0.0041-0.0299			

Table 6. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000003 and 2IE00000004. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE00000) OUTFALL=003											
PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN95 THRU DEC99			RANGE	N	DECISION CRITERIA	
			30 DAY	DAILY	N	50 PCTL	95 PCTL			PEQavg.	PEQmax.
BOD 5 DAY	MAY-OCT	MG/L	--	--	12	3	4	1-4			
		KG/DAY	--	--	12	0.17032	0.28766	0.0757-0.2877			
	NOV-APR	MG/L	--	--	12	3	5	3-6			
		KG/DAY	--	--	12	0.23845	0.28766	0-0.3407			
CBOD 5 DAY	MAY-OCT	MG/L	10	15	14	2.2	3.1	1.6-5.7			
		KG/DAY	--	--	14	0.13323	0.22294	0.0545-0.4531			
	NOV-APR	MG/L	10	15	17	2.6	6.3	1.7-6.7			
		KG/DAY	--	--	17	0.22634	0.4542	0.1211-0.7101			
CHLORINE TOT RESD	ANNUAL	MG/L	--	--	8	0.05	0.07	0.05-0.07			
		KG/DAY	--	--	8	0	0.00636	0-0.0064			
FEC COLI MFM-FCBR	ANNUAL	/100ML	--	--	2	1	1	1-1			
COLOR SEVERITY	ANNUAL	'	Observation		1705	0	0	0-0			
CONDUIT FLOW	ANNUAL	MGD	Monitor		1589	0.017	0.023	0.001-0.182			
ODOR SEVERITY UNIT	ANNUAL	'	Observation		1705	0	0	0-0			
PH	ANNUAL	S.U.	--	--	429	7*	7.7	6.7-8.2			
RESIDUE TOT NFLT	ANNUAL	MG/L	12	18	247	2	7	0-23			
		KG/DAY	--	--	247	0.13626	0.43149	0-2.7555			
TURBID SEVERITY	ANNUAL	'	Observation		1705	0	0	0-1			
BRUSH WELLMAN (2IE00000) OUTFALL=004											
PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN95 THRU DEC98			RANGE	N	DECISION CRITERIA	
			30 DAY	DAILY	N	50 PCTL	95 PCTL			PEQavg.	PEQmax.
BERYLIUM TOT REC	ANNUAL	UG/L	Monitor		16	390	2280	20-5260			
		KG/DAY	--	--	16	0.03444	0.71673	0-2.4854			
CONDUIT FLOW	ANNUAL	MGD	Monitor		18	0.022	0.108	0.003-0.288			
COPPER TOT REC	ANNUAL	UG/L	Monitor		15	250	1150	50-1210			
		KG/DAY	--	--	15	0.02271	0.3134	0-0.6541			
COPPER TREC 0.001	ANNUAL	UG/L	Monitor		2	150	240	150-240			
		KG/DAY	--	--	2	0.00795	0.02634	0.0079-0.0263			
FLUORIDE F,TOT	ANNUAL	MG/L	Monitor		17	8.6	42.2	2.1-43.9			
		KG/DAY	--	--	17	0.58289	5.0961	0-9.2657			
PCBS WLSMPL	ANNUAL	UG/L	Monitor		4	0	4.3	0-4.3			
PH	ANNUAL	S.U.	--	--	15	5.9*	8.1	5.9-8.2			

Table 7. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfalls 2IE00000005 and 2IE00000006. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE000000) OUTFALL=005

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN95 THRU AUG99			RANGE	N	DECISION CRITERIA	
			30 DAY	DAILY	N	50 PCTL	95 PCTL			PEQavg.	PEQmax.
BERYLIUM TOT REC	ANNUAL	UG/L	Monitor		47	30	200	10-3580			
		KG/DAY	--	--	47	0.0025	0.02725	0-0.1897			
CONDUIT FLOW	ANNUAL	MGD	Monitor		47	0.022	0.072	0.007-0.216			
COPPER TOT REC	ANNUAL	UG/L	Monitor		20	320	1290	36-1670			
		KG/DAY	--	--	20	0.02665	0.22755	0-0.3189			
COPPER TREC 0.001	ANNUAL	UG/L	Monitor		25	300	1110	20-1150			
		KG/DAY	--	--	25	0.02665	0.07487	0.0023-0.079			
FLUORIDE F,TOT	ANNUAL	MG/L	Monitor		47	1	4.3	0-5			
		KG/DAY	--	--	47	0.09008	0.40878	0-0.5723			
PCBS WLSMPL	ANNUAL	UG/L	Monitor		26	0	0	0-0			
PH	ANNUAL	S.U.	--	--	21	7.3*	8	7.3-8.4			

BRUSH WELLMAN (2IE000000) OUTFALL=006

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN95 THRU DEC99			RANGE	N	DECISION CRITERIA	
			30 DAY	DAILY	N	50 PCTL	95 PCTL			PEQavg.	PEQmax.
BERYLIUM TOT REC	ANNUAL	UG/L	Monitor		54	10	20	0-150			
		KG/DAY	--	--	54	0.00053	0.00273	0-0.0082			
CONDUIT FLOW	ANNUAL	MGD	Monitor		54	0.014	0.072	0.003-0.108			
COPPER TOT REC	ANNUAL	UG/L	Monitor		21	120	260	50-280			
		KG/DAY	--	--	21	0.0106	0.04088	0-0.1145			
COPPER TREC 0.001	ANNUAL	UG/L	Monitor		30	60	120	0-210			
		KG/DAY	--	--	30	0.00318	0.0109	0-0.0395			
FLUORIDE F,TOT	ANNUAL	MG/L	Monitor		54	0.8	1.2	0-1.3			
		KG/DAY	--	--	54	0.03785	0.13626	0-0.2453			
PH	ANNUAL	S.U.	6.5 to 9.0		54	7.4*	8.1	7-8.5			

Table 8. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfalls 2IE00000007 and 2IE00000008. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE000000) OUTFALL=007									
PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN95 THRU DEC99			RANGE	N
			30 DAY	DAILY	N	50 PCTL	95 PCTL		
BERYLIUM TOT REC	ANNUAL	UG/L	Monitor		51	30	190	10-550	
		KG/DAY	--	--	51	0.00151	0.00878	0-0.0537	
CONDUIT FLOW	ANNUAL	MGD	Monitor		52	0.012	0.029	0-0.03-0.043	
COPPER TOT REC	ANNUAL	UG/L	Monitor		21	200	600	60-700	
		KG/DAY	--	--	21	0.00916	0.05269	0-0.1139	
COPPER TREC 0.001	ANNUAL	UG/L	Monitor		29	160	720	0-1500	
		KG/DAY	--	--	29	0.00636	0.03974	0-0.04	
FLUORIDE F,TOT	ANNUAL	MG/L	Monitor		51	2	4.1	0.8-8.2	
		KG/DAY	--	--	51	0.07494	0.33081	0-0.5696	
PCBS WLSMPL	ANNUAL	UG/L	Monitor		32	0	0	0-70	
PH	ANNUAL	S.U.	--	--	21	7.2*	7.7	7.2-7.9	
BRUSH WELLMAN (2IE000000) OUTFALL=008									
PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN95 THRU AUG98			RANGE	N
			30 DAY	DAILY	N	50 PCTL	95 PCTL		
BERYLIUM TOT REC	ANNUAL	UG/L	Monitor		13	1300	5200	18-5780	
		KG/DAY	--	--	13	0.05829	0.24481	0-0.4813	
CONDUIT FLOW	ANNUAL	MGD	Monitor		14	0.01	0.043	0-0.007-0.044	
COPPER TOT REC	ANNUAL	UG/L	Monitor		13	160	920	80-980	
		KG/DAY	--	--	13	0.00424	0.06964	0-0.1351	
COPPER TREC 0.001	ANNUAL	UG/L	Monitor		1	500	500	500-500	
		KG/DAY	--	--	1	0.01893	0.01893	0-0.0189-0.0189	
FLUORIDE F,TOT	ANNUAL	MG/L	Monitor		14	4.6	12.3	1.3-16.8	
		KG/DAY	--	--	14	0.17487	0.45571	0-1.3989	
PCBS WLSMPL	ANNUAL	UG/L	Monitor		1	0	0	0-0	
PH	ANNUAL	S.U.	--	--	13	6.8*	7.3	6.8-7.5	

Table 9. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000009. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE000000) OUTFALL=009

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN95 THRU JUN99				DECISION CRITERIA		
			30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE	N	PEQavg.	PEQmax.
BERYLIUM TOT REC	ANNUAL	UG/L	Monitor		30	10	10	0-20			
		KG/DAY	--	--	30	0.00083	0.01635	0-0.0218			
CONDUIT FLOW	ANNUAL	MGD	Monitor		30	0.072	0.432	0.007-0.432			
COPPER TOT REC	ANNUAL	UG/L	Monitor		15	30	60	10-70			
		KG/DAY	--	--	15	0.00818	0.02725	0-0.1145			
COPPER TREC 0.001	ANNUAL	UG/L	Monitor		15	30	60	0-90			
		KG/DAY	--	--	15	0.00659	0.0327	0-0.1472			
FLUORIDE F,TOT	ANNUAL	MG/L	Monitor		30	0.4	1	0-4.1			
		KG/DAY	--	--	30	0.10863	0.65405	0-1.0356			
PH	ANNUAL	S.U.	6.5 to 9.0		29	7.6*	9	7.6-9.1			

Table 10. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000011. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE00000) OUTFALL=011

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN95 THRU DEC99				DECISION CRITERIA		
			30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE	N	PEQ_{avg}	PEQ_{max}
AMMONIA NH3-N	MAY-OCT	MG/L	--	13	80	2.8	5.1	1.2-5.9			
		KG/DAY	--	--	80	0	5.3887	0-17.955			
	NOV-APR	MG/L	--	13	73	4	8.4	1.4-12			
		KG/DAY	--	--	73	0	20.984	0-45.291			
BARIUM TOT REC	ANNUAL	UG/L	--	--	28	26	30	15-30			
		KG/DAY	--	--	28	0.03316	0.08139	0.0095-0.0852			
BERYLIUM TOT REC	ANNUAL	UG/L	--	102	154	20	60	10-100			
		KG/DAY	--	--	154	0	0.03634	0-0.2192			
CADMIUM TOT REC	ANNUAL	UG/L	--	26	59	10	10	0-15			
		KG/DAY	--	--	59	0.00719	0.02343	0-0.073			
CADMIUM TREC 0.001	ANNUAL	UG/L	--	26	83	10	10	0-10			
CHLORINE TOT RESD	ANNUAL	MG/L	--	0.038	43	0	0.05	0-50			
		KG/DAY	--	--	43	0	0.07267	0-70.969			
CHROMIUM TOT 0.01	ANNUAL	UG/L	Monitor	--	88	20	30	10-40			
CHROMHEX TOT 0.001	ANNUAL	UG/L	--	--	87	2	5	1-8			
CHROMIUM CR,TOT	ANNUAL	UG/L	Monitor	--	61	20	30	10-40			
		KG/DAY	--	--	61	0.02226	0.06783	0.0101-0.2135			
CHROMIUM HEX-DIS	ANNUAL	UG/L	26	47	61	3	10	0-20			
		KG/DAY	--	--	61	0.00337	0.01431	0-0.0584			
FEC COLI MFM-FCBR	ANNUAL	/100ML	1000	2000	26	1	200	0-1600			
CONDUIT FLOW	ANNUAL	MGD	Monitor	--	354	0.346	0.847	0.01-1.97			
COPPER TOT REC	ANNUAL	UG/L	--	416	61	120	200	10-1600			
		KG/DAY	--	--	61	0.14307	0.33475	0-1.3149			
COPPER TREC 0.001	ANNUAL	UG/L	--	416	88	110	180	30-270			
CYANIDE F,AMENA	ANNUAL	MG/L	--	--	4	0	0	0-0			
CYANIDE FREE,AMENA	ANNUAL	MG/L	--	--	3	0	0	0-0			
CYANIDE TOT	ANNUAL	MG/L	--	--	41	0	20	0-20			
		KG/DAY	--	--	41	0	21.423	0-146.1			
FLUORIDE F,TOT	ANNUAL	MG/L	--	16	154	9.5	14	3.2-16			
		KG/DAY	--	--	154	0	23.061	0-99.349			
LEAD TOT REC	ANNUAL	UG/L	--	--	57	10	20	0-30			
		KG/DAY	--	--	57	0.01022	0.04323	0-0.2135			
NICKEL TOT REC	ANNUAL	UG/L	Monitor	--	61	120	150	10-170			
		KG/DAY	--	--	61	0.10333	0.32646	0.0101-1.0958			
NICKEL TREC 0.01	ANNUAL	UG/L	Monitor	--	88	100	160	10-160			

BRUSH WELLMAN (21E00000) OUTFALL=011

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN95 THRU DEC99				DECISION CRITERIA		
			30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE	N	PEQavg.	PEQmax.
OIL GRSE TOT	ANNUAL	MG/L	12	20	154	4	8	1-40			
		KG/DAY	--	--	154	0	8.1756	0-31.794			
PH	ANNUAL	S.U.	6.5 to 9.5		921	7.3*	9	6.5-9.4			
PHOS-T P-WET	ANNUAL	MG/L	Monitor		94	0.11	10.2	0.02-280			
		KG/DAY	--	--	94	0.06586	0.64723	0-1534.1			
RESIDUE DIS-105C	ANNUAL	MG/L	--	25000	154	10420	12815	655-13615			
		KG/DAY	--	--	154	0	24216	0-80648			
RESIDUE TOT NFLT	ANNUAL	MG/L	30	45	175	16	36	2-2216			
		KG/DAY	--	--	175	0	43.527	0-1476.2			
SILVER TOT REC	ANNUAL	UG/L	--	50	126	24	38	2-44			
		KG/DAY	--	--	126	0	0.04428	0-0.2045			

Table 11. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000014. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE00000) OUTFALL=014

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = MAY97 THRU MAY99			RANGE	DECISION CRITERIA		
			30 DAY	DAILY	N	50 PCTL	95 PCTL		N	PEQavg.	PEQmax.
AMMONIA NH3-N	2 ANNUAL	2			4	0.396	0.458	0.325-0.458			
	MAY-OCT	MG/L	--	133	6	23	110	20-110			
		KG/DAY	--	1972	6	7.1423	25.833	1.9871-25.833			
	NOV-APR	MG/L	--	133	12	33	71	16.5-83.5			
BERYLIUM TOT REC	ANNUAL	UG/L	--	801	18	20	210	0-470			
		KG/DAY	--	12.5	18	0.01427	0.31491	0-1.5477			
CADMIUM TREC 0.001	ANNUAL	UG/L	Monitor	--	18	10	10	0-10			
		KG/DAY	--	--	18	0.00727	0.03293	0-0.0333			
CHROMIUM TOT 0.01	ANNUAL	UG/L	--	46	18	10	25	0-40			
		KG/DAY	--	5.05	18	0.0126	0.03327	0-0.0763			
CHROMHEX TOT 0.001	ANNUAL	UG/L	--	17	18	2	12	2-36			
		KG/DAY	--	--	18	0.00285	0.01664	0-0.0366			
CONDUIT FLOW	ANNUAL	MGD	Monitor	--	41	0.1	0.834	0.012-0.879			
COPPER TREC 0.001	ANNUAL	UG/L	--	243	18	60	180	20-230			
		KG/DAY	--	20.5	18	0.04281	0.59273	0-0.7156			
CYANIDE FREE	ANNUAL	MG/L	Monitor	--	18	0	0.02	0-0.04			
		KG/DAY	--	--	18	0	0.01575	0-0.0291			
CYANIDE TOT	ANNUAL	MG/L	--	0.20	18	0	0	0-0			
FLUORIDE F,TOT	ANNUAL	MG/L	--	35	18	15	23	11-32			
		KG/DAY	--	674	18	18.693	56.559	0-62.566			
NICKEL TREC 0.01	ANNUAL	UG/L	Monitor	--	18	70	90	40-110			
		KG/DAY	--	--	18	0.08266	0.22097	0-0.2441			
PH	ANNUAL	S.U.	6.5 to 9.5	--	18	7.1*	9.5	7.1-9.5			
PHOS-T P-WET	ANNUAL	MG/L	Monitor	--	17	0.02	0.21	0-20			
		KG/DAY	--	--	17	0.02464	0.16635	0-31.491			
RESIDUE DIS-105C	ANNUAL	MG/L	--	21560	18	6032	8275	3920-8275			
		KG/DAY	--	--	18	6659.6	17141	0-19692			
RESIDUE TOT NFLT	ANNUAL	MG/L	--	41	18	6	15	1-37			
		KG/DAY	--	656	18	4.3603	24.89	0-30.507			
SILVER TOT REC	ANNUAL	UG/L	--	42	18	14	19	7-19			
		KG/DAY	--	--	18	0.01343	0.05323	0-0.0626			

Table 12. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000041. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE000000) OUTFALL=041

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JUL97 THRU NOV99			RANGE	DECISION CRITERIA		
			30 DAY	DAILY	N	50 PCTL	95 PCTL		N	PEQavg.	PEQmax.
AMMONIA NH3-N	MAY-OCT	MG/L	--	--	13	2.7	20	1.1-21			
		KG/DAY	2.68	--	13	1.5844	2.849	0.5204-3.6116			
	NOV-APR	MG/L	--	--	4	2.5	4.8	2-4.8			
		KG/DAY	28.4	--	4	1.1544	5.1779	0.8176-5.1779			
BERYLIUM TOT REC	ANNUAL	UG/L	--	--	19	20	60	0-100			
		KG/DAY	1.4	36.7	19	0.01461	0.05204	0-0.0579			
CADMIUM TREC 0.001	ANNUAL	UG/L	--	--	16	10	10	0-10			
		KG/DAY	0.04	0.238	16	0.00409	0.01041	0-0.0108			
CHROMIUM TOT 0.01	ANNUAL	UG/L	--	--	16	10	20	10-40			
		KG/DAY	1.19	57.6	16	0.00924	0.01461	0.0009-0.0278			
CHROMHEX TOT 0.001	ANNUAL	UG/L	--	--	16	4	6	2-6			
		KG/DAY	0.15	0.21	16	0.00271	0.00539	0.0005-0.0056			
CONDUIT FLOW	ANNUAL	MGD	Monitor		107	0.154	0.367	0.019-1.028			
COPPER TREC 0.001	ANNUAL	UG/L	--	--	16	100	140	20-180			
		KG/DAY	0.339	0.607	16	0.05995	0.10424	0.0019-0.1945			
CYANIDE FREE	ANNUAL	MG/L	--	--	2	0	0	0-0			
NICKEL TREC 0.01	ANNUAL	UG/L	--	--	16	70	160	10-160			
		KG/DAY	2.52	51.9	16	0.03497	0.11688	0.0058-0.2223			
RESIDUE DIS-105C	ANNUAL	MG/L	--	--	17	10570	12290	6715-12750			
		KG/DAY	13122	13122	17	6196.4	10367	643.45-17072			
SILVER TOT REC	ANNUAL	UG/L	--	--	18	22	42	5-44			
		KG/DAY	0.018	0.124	18	0.01199	0.02045	0.0013-0.0431			

Table 13. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000042. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE00000) OUTFALL=042											
PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN97 THRU DEC99				DECISION CRITERIA		
			30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE	N	PEQavg.	PEQmax.
AMMONIA NH3-N	MAY-OCT	MG/L	--	--	12	3.3	4.4	2.1-5.1			
		KG/DAY	5.36	32.69	12	2.8554	5.0711	1.8282-5.1325			
	NOV-APR	MG/L	--	--	8	3.4	5.2	2.1-5.2			
		KG/DAY	56.84	212.69	8	2.7328	9.7426	1.5518-9.7426			
BERYLIUM TOT REC	ANNUAL	UG/L	--	--	20	20	50	10-60			
		KG/DAY	2.81	73	20	0.01938	0.04826	0.0087-0.1329			
CADMIUM TREC 0.001	ANNUAL	UG/L	--	--	16	10	10	0-10			
		KG/DAY	0.08	0.48	16	0.00806	0.01533	0-0.0221			
CHROMIUM TOT 0.01	ANNUAL	UG/L	--	--	16	20	20	10-30			
		KG/DAY	2.38	115	16	0.01612	0.02566	0.0097-0.0307			
CHROMHEX TOT 0.001	ANNUAL	UG/L	--	--	16	2	6	2-8			
		KG/DAY	0.31	0.42	16	0.00204	0.01027	0.0012-0.0133			
CONDUIT FLOW	ANNUAL	MGD	Monitor		123	0.272	0.606	0.037-0.734			
COPPER TREC 0.001	ANNUAL	UG/L	--	--	16	100	140	70-270			
		KG/DAY	0.68	1.22	16	0.10659	0.155	0.0621-0.1615			
CYANIDE FREE	ANNUAL	MG/L	--	--	1	0	0	0-0			
NICKEL TREC 0.01	ANNUAL	UG/L	--	--	16	100	130	10-140			
		KG/DAY	5.04	103.84	16	0.08705	0.15367	0.0097-0.154			
RESIDUE DIS-105C	ANNUAL	MG/L	--	--	20	10520	11700	7010-12210			
		KG/DAY	26243	26243	20	9400.3	14076	5704.4-20614			
SILVER TOT REC	ANNUAL	UG/L	--	--	20	24	42	2-44			
		KG/DAY	0.036	0.247	20	0.02566	0.03534	0.0019-0.0358			

Table 14. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000043. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE000000) OUTFALL=043

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN97 THRU NOV99				DECISION CRITERIA		
			30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE	N	PEQ_{avg}	PEQ_{max}
AMMONIA NH3-N	MAY-OCT	MG/L	--	--	6	3	37	1.6-37			
		KG/DAY	8.04	46.69	6	4.4284	8.6298	2.1135-8.6298			
	NOV-APR	MG/L	--	--	3	5.5	26	2.6-26			
		KG/DAY	38.69	85.26	3	4.3717	40.939	2.7358-40.939			
BERYLIUM TOT REC	ANNUAL	UG/L	--	--	9	20	200	0-200			
		KG/DAY	4.21	110	9	0.02226	0.31491	0-0.3149			
CADMIUM TREC 0.001	ANNUAL	UG/L	--	--	8	10	10	0-10			
		KG/DAY	0.12	0.72	8	0.01177	0.02271	0-0.0227			
CHROMIUM TOT 0.01	ANNUAL	UG/L	--	--	9	10	30	0-30			
		KG/DAY	3.57	173	9	0.02105	0.02952	0-0.0295			
CHROMHEX TOT 0.001	ANNUAL	UG/L	--	--	9	2	8	2-8			
		KG/DAY	0.46	0.63	9	0.00223	0.0126	0.0004-0.0126			
CONDUIT FLOW	ANNUAL	MGD	Monitor		52	0.362	0.616	0.018-1.113			
COPPER TREC 0.001	ANNUAL	UG/L	--	--	9	110	170	20-170			
		KG/DAY	1.02	1.82	9	0.09538	0.36336	0.0039-0.3634			
CYANIDE FREE	ANNUAL	MG/L	--	--	2	0	0	0-0			
NICKEL TREC 0.01	ANNUAL	UG/L	--	--	9	70	130	20-130			
		KG/DAY	7.56	156	9	0.07154	0.16238	0.0135-0.1624			
RESIDUE DIS-105C	ANNUAL	MG/L	--	--	9	8025	12290	5450-12290			
		KG/DAY	39365	42924	9	9768.7	22051	1052-22051			
SILVER TOT REC	ANNUAL	UG/L	--	--	9	16	38	2-38			
		KG/DAY	0.05	0.37	9	0.02519	0.05314	0.0021-0.0531			

Table 15. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000044. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE00000) OUTFALL=044

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN97 THRU NOV99			RANGE	DECISION CRITERIA		
			30 DAY	DAILY	N	50 PCTL	95 PCTL		N	PEQ _{avg} .	PEQ _{max} .
AMMONIA NH3-N	MAY-OCT	MG/L	--	--	7	3.6	23	2.4-23			
		KG/DAY	10.7	62.69	7	8.4345	16.715	3.391-16.715			
	NOV-APR	MG/L	--	--	3	2.6	4.6	2.5-4.6			
		KG/DAY	113.68	425.69	3	4.7729	10.116	3.0942-10.116			
BERYLIUM TOT REC	ANNUAL	UG/L	--	--	10	10	60	10-60			
		KG/DAY	5.62	147	10	0.01836	0.07358	0.0073-0.0736			
CADMIUM TREC 0.001	ANNUAL	UG/L	--	--	10	10	10	0-10			
		KG/DAY	0.16	0.95	10	0.01226	0.02343	0-0.0234			
CHROMIUM TOT 0.01	ANNUAL	UG/L	--	--	10	20	40	10-40			
		KG/DAY	4.76	231	10	0.02252	0.09372	0.0145-0.0937			
CHROMHEX TOT 0.001	ANNUAL	UG/L	--	--	9	2	12	1-12			
		KG/DAY	0.62	0.84	9	0.00245	0.00872	0.0022-0.0087			
CONDUIT FLOW	ANNUAL	MGD	Monitor		105	0.523	0.817	0.167-1.195			
COPPER TREC 0.001	ANNUAL	UG/L	--	--	10	100	150	50-150			
		KG/DAY	1.35	2.43	10	0.16881	0.33781	0.0509-0.3378			
CYANIDE FREE	ANNUAL	MG/L	--	--	1	0.04	0.04	0.04-0.04			
		KG/DAY	0.67	2.58	1	0.02907	0.02907	0.0291-0.0291			
NICKEL TREC 0.01	ANNUAL	UG/L	--	--	10	100	140	50-140			
		KG/DAY	10.08	208	10	0.15942	0.28115	0.0581-0.2812			
RESIDUE DIS-105C	ANNUAL	MG/L	--	--	10	9085	11085	13-11085			
		KG/DAY	52487	57232	10	11773	24027	28.637-24027			
SILVER TOT REC	ANNUAL	UG/L	--	--	10	22	29	12-29			
		KG/DAY	0.07	0.50	10	0.02971	0.05728	0.0087-0.0573			

Table 16. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000045. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE000000) OUTFALL=045

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = FEB97 THRU JUL99			RANGE	N	DECISION CRITERIA	
			30 DAY	DAILY	N	50 PCTL	95 PCTL			PEQ_{avg}	PEQ_{max}
AMMONIA NH3-N	MAY-OCT	MG/L	--	--	7	3.4	110	1.4-110			
		KG/DAY	22.3	130.69	7	8.3777	25.833	3.6828-25.833			
	NOV-APR	MG/L	--	--	9	3.3	6.1	1-6.1			
		KG/DAY	236.83	881.69	9	8.3936	15.543	3.1529-15.543			
BERYLIUM TOT REC	ANNUAL	UG/L	--	--	16	20	80	0-210			
		KG/DAY	11.7	306	16	0.04111	0.13221	0-0.2386			
CADMIUM TREC 0.001	ANNUAL	UG/L	--	--	16	10	10	0-10			
		KG/DAY	0.34	1.99	16	0.02055	0.02983	0-0.0315			
CHROMIUM TOT 0.01	ANNUAL	UG/L	--	--	16	20	20	0-20			
		KG/DAY	9.92	480	16	0.03936	0.05322	0-0.0597			
CHROMHEX TOT 0.001	ANNUAL	UG/L	--	--	16	2	4	1-4			
		KG/DAY	1.28	1.75	16	0.00503	0.01007	0.0005-0.0126			
CONDUIT FLOW	ANNUAL	MGD	Monitor		76	0.62	0.833	0.008-1.181			
COPPER TREC 0.001	ANNUAL	UG/L	--	--	16	100	200	30-200			
		KG/DAY	2.82	5.06	16	0.23618	0.42574	0.0208-0.5034			
CYANIDE FREE	ANNUAL	MG/L	--	--	4	0	0	0-0			
NICKEL TREC 0.01	ANNUAL	UG/L	--	--	16	90	160	10-160			
		KG/DAY	21	433	16	0.2207	0.4221	0.0189-0.4257			
RESIDUE DIS-105C	ANNUAL	MG/L	--	--	16	8930	12520	20-13090			
		KG/DAY	109347	119233	16	20892	32982	46.934-33957			
SILVER TOT REC	ANNUAL	UG/L	--	--	16	20	33	7-34			
		KG/DAY	0.15	1.03	16	0.05755	0.08545	0.0016-0.0871			

Table 17. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000046. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE000000) OUTFALL=046

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = MAR97 THRU JUN99			RANGE	DECISION CRITERIA		
			30 DAY	DAILY	N	50 PCTL	95 PCTL		N	PEQ_{avg}	PEQ_{max}
AMMONIA NH3-N	MAY-OCT	MG/L	--	--	7	3	3.9	2.3-3.9			
		KG/DAY	39.3	230.69	7	7.4716	10.428	2.3732-10.428			
	NOV-APR	MG/L	--	--	25	4.6	44	2.1-71			
		KG/DAY	416.83	1560.69	25	11.77	144.89	3.1794-220.9			
BERYLIUM TOT REC	ANNUAL	UG/L	--	--	49	10	100	0-470			
		KG/DAY	20.6	538	49	0.02491	0.21385	0-1.5477			
CADMIUM TREC 0.001	ANNUAL	UG/L	--	--	35	10	10	0-10			
		KG/DAY	0.60	3.50	35	0.02226	0.03293	0-0.0417			
CHROMIUM TOT 0.01	ANNUAL	UG/L	--	--	34	20	30	10-40			
		KG/DAY	17.45	845	34	0.03437	0.06525	0.0114-0.0834			
CHROMHEX TOT 0.001	ANNUAL	UG/L	--	--	34	2	5	1-36			
		KG/DAY	2.26	3.08	34	0.00498	0.01664	0.0016-0.0587			
CONDUIT FLOW	ANNUAL	MGD	Monitor		207	0.598	0.87	0.054-2.003			
COPPER TREC 0.001	ANNUAL	UG/L	--	--	35	110	190	30-230			
		KG/DAY	4.97	8.90	35	0.28236	0.45882	0.0343-0.7156			
CYANIDE FREE	ANNUAL	MG/L	--	--	11	0	0	0-0.4			
		KG/DAY	2.46	9.45	11	0	0	0-0.7343			
NICKEL TREC 0.01	ANNUAL	UG/L	--	--	34	100	160	20-160			
		KG/DAY	36.96	762	34	0.21075	0.39425	0.0229-0.4421			
RESIDUE DIS-105C	ANNUAL	MG/L	--	--	32	8695	11550	3810-12200			
		KG/DAY	192451	209850	32	16909	29274	5379-31257			
SILVER TOT REC	ANNUAL	UG/L	--	--	34	23	34	12-34			
		KG/DAY	0.26	1.81	34	0.05323	0.09176	0.0169-0.0981			

Table 18. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Brush Wellman outfall 2IE00000900. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

BRUSH WELLMAN (2IE00000) OUTFALL=900

PARAMETER	SEASON	UNITS	CURRENT PERMIT		PERIOD = JAN97 THRU DEC99				DECISION CRITERIA		
			30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE	N	PEQ_{avg}	PEQ_{max}
AMMONIA NH3-N	MAY-OCT	MG/L	Monitor		17	0.7	16	0-53			
	NOV-APR	MG/L	Monitor		17	1.8	5.4	0-33			
BERYLIUM TOT REC	ANNUAL	UG/L	Monitor		30	40	90	10-160			
COPPER TREC 0.001	ANNUAL	UG/L	Monitor		33	100	290	0-370			
CYANIDE FREE	ANNUAL	MG/L	Monitor		30	0	0	0-0			
NICKEL TREC 0.01	ANNUAL	UG/L	Monitor		32	50	120	10-130			
NITRITE NO2-N	ANNUAL	MG/L	Monitor		34	2	12	0.04-16			
NO2&NO3 N-TOT	ANNUAL	MG/L	Monitor		34	113	588	3-1085			
PCB 1016	ANNUAL	UG/L	None detected		31	0	0	0-0			
PCB 1221	ANNUAL	UG/L	None detected		31	0	0	0-0			
PCB 1232	ANNUAL	UG/L	None detected		33	0	0	0-60			
PCB 1242	ANNUAL	UG/L	None detected		32	0	0	0-0			
PCB 1248	ANNUAL	UG/L	None detected		31	0	0	0-0			
PCB 1254	ANNUAL	UG/L	None detected		31	0	0	0-0			
PCB 1260	ANNUAL	UG/L	None detected		27	0	0	0-0			
PH	ANNUAL	S.U.	Monitor		34	7.4*	8.1	7.2-9.2			
RESIDUE DIS-105C	ANNUAL	MG/L	Monitor		34	4985	11875	371-13400			
ZINC TOTAL 0.01	ANNUAL	UG/L	Monitor		32	30	110	10-140			

Table 19. Summary of ACUTE toxicity test results on the Brush Wellman effluent from outfalls 2IE00000011 and 2IE00000900.

TEST DATE(a)	<i>Ceriodaphnia dubia</i> 48 hour						<i>Fathead Minnows</i> 48 hour					
	UP ^b	C ^c	LC ₅₀ ^d	%M ⁱ	TUa ^e	NF ^h	UP ^b	C ^c	LC ₅₀ ^d	%M ⁱ	TUa ^e	NF ^h
<i>Outfall 011</i>												
03/09/99 (O)	0	0-10	40.6	100	2.46	0	0	0	70.7	NR	1.41	0
<i>Station 900</i>												
03/09/99 (O)	0	0-10	<100	75-100	>1.0	0	0	0	>100	0	<1.0	0

^a O = EPA test; E = entity test

^b UP = upstream control water

^c C = laboratory water control

^d LC₅₀ = Median Lethal Concentration

^e EC₅₀ = Median effects concentration

NT = not tested

^f %A = Percent Adversely Affected in 100% effluent

^g TUa = Acute Toxicity Units

^h NF = Near Field Sample In the Portage River

ⁱ %M = Percent Mortality in 100% effluent

ND = not determined

Table 20. Summary of the aquatic life use attainment status for the warmwater habitat use designation in Portage River based on data collected by the Ohio EPA from 1994 and 1985.

RIVER MILE Fish/Macro.	IBI	Mod. Iwb	ICI	QHEI	Use Attain- Ment Status	Comments
Portage River (1994)						
<i>Huron/Erie Lake Plain - WWH Use Designation (Existing)</i>						
17.6/17.7	37	8.7	48	59.5	FULL	Regional Reference Site
17.4/ --	31 ^{ns}	7.1 ^{ns}	--	58.5	(FULL)	Upstream ambient
16.8/17.0	39	9.0	52	67.0	FULL	Ust. Brush Wellman
<i>Estuarine Effect - Interim Lake Erie Estuary Biocriteria</i>						
16.5/16.5S	31	7.9	34	--	N/A	BW mixing zone (Hyde Run)
-- /16.5N	--	--	30	--	(FULL)	Opposite BW (Hyde Run)
16.2/ --	33	8.3	--	68.0	(FULL)	Dst. Brush Wellman
13.3/13.8	37	9.8	16*	64.5	PARTIAL	Ust. Oak Harbor WWTP
12.3/12.3	37	9.8	<u>6</u> *	51.5	NON	Dst. Oak Harbor WWTP
Portage River (1985)						
<i>Huron/Erie Lake Plain - WWH Use Designation (Existing)</i>						
17.6/18.1	41	9.4	44	--	FULL	Regional Reference Site
17.3/17.2	36	9.1	30 ^{ns}	--	FULL	Regional Reference Site
-- /17.1	--	--	38	--	(FULL)	Regional Reference Site
16.8/17.0	28*	7.4*	44	--	PARTIAL	Ust. Brush Wellman
16.7/16.7S	34	8.0 ^{ns}	32	57.0	FULL	Dst. BW (006, 009)
<i>Estuarine Effect - Interim Lake Erie Estuary Biocriteria</i>						
16.4/16.5N	28 ^{ns}	7.5	32	--	FULL	Dst. BW (Hyde Run)
16.3S/ --	33	8.0	--	59.0	(FULL)	Dst. Brush Wellman
15.0/15.7	27*	7.8	24	54.0	PARTIAL	Estuarine effect
13.0/ --	31 ^{ns}	8.8	--	51.0	(FULL)	Ust. Oak Harbor WWTP

* Significant departure from ecoregion or interim biocriterion; poor and very poor results are underlined.

^{ns} Nonsignificant departure from ecoregion or interim biocriterion (≤ 4 IBI or ICI units; ≤ 0.5 Iwb units).

^a All Qualitative Habitat Evaluation Index (QHEI) values are based on the most recent version (Rankin 1989).

^b Use attainment status based on one organism group is parenthetically expressed.

^c Biocriteria do not apply inside mixing zones. S - south bank; N - north bank

Table 20. continued

Ecoregion Biocriteria: Huron/Erie Lake Plain (HELP)

<u>INDEX - Site Type</u>	<u>WWH</u>	<u>EWH</u>	<u>MWH^d</u>
IBI - Wading Sites (ust. RM 17.0)	32	50	22
IBI - Boat Sites (RM 17.0-16.8)	34	50	20
IBI - Interim L. Erie Estuary (RM 16.5 and dst.)	32	NA	NA
MIwb - Wading Sites	7.3	9.4	5.6
MIwb - Boat Sites	8.6	9.6	5.7
MIwb - Interim L. Erie Estuary	7.5	NA	NA
ICI	34	46	22
ICI - Interim L. Erie Estuary	22	NA	NA

^d - Modified Warmwater Habitat for channelized modification type.

Table 21. Ohio EPA, Division of Emergency and Remedial Response, records of pollution spills suspected to have originated from Brush Wellman.

DATE	WATERBODY AFFECTED	SUSPECTED POLLUTANT	AMOUNT SPILLED	AMOUNT RECOVERED
01/18/96	Hyde Run	wastewater	NR	NR
01/25/96	site grounds	process water	NR	NR
02/01/96	plant site	hydrochloric acid	8.0 gallons	NR
01/15/97	plant site	wastewater	1000 gallons	NR
07/28/98	site grounds	cooling water	100,000 gal.	NR
10/05/98	Hyde Run	wastewater	100 gallons	NR
12/31/99	site grounds	sewage	NR	NR
05/22/00	site grounds	hydrofluoric acid	25 gallons	NR

Table 22. Effluent Data for Brush Wellman

	Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
LEAPS DATA						
002	Residue, Dis.	mg/l	4	4	10610	14534
	Phos.-T P-Wet.	mg/l	4	3	0.0949	0.13
	Cyanide, Tot.	mg/l	2	0	--	--
	Fluoride, Tot.	mg/l	4	4	30.368	41.6
	Beryllium ^A	ug/l	4	4	341.64	468
	Cadmium	ug/l	4	2	18.98	26
	Chromium, Hex.	ug/l	4	4	11.388	15.6
	Chromium, Tot.	ug/l	4	4	37.96	52
	Copper	ug/l	4	4	379.6	520
	Lead	ug/l	1	0	--	--
	Nickel	ug/l	4	4	246.74	338
	Silver	ug/l	4	4	26.572	36.4
	Cyanide, Free	mg/l	4	0	--	--
004	Fluoride, Tot.	mg/l	8	8	31.901	43.7
	Beryllium ^A	ug/l	8	8	3162.4	4332
	Copper	ug/l	8	8	1109.6	1520
	PCBs ^A	ug/l	6	1	6.5919	9.03
005	Fluoride, Tot.	mg/l	41	40	2.3994	3.7069
	Beryllium ^A	ug/l	41	41	145.28	232.71
	Copper	ug/l	39	39	923	1265
	PCBs ^A	ug/l	31	0	--	--
006	Fluoride, Tot.	mg/l	58	56	1.4617	2.2161
	Beryllium ^A	ug/l	56	44	29	40
	Copper	ug/l	54	53	165.26	257.33
007	Fluoride, Tot.	mg/l	54	54	3.3838	5.002
	Beryllium ^A	ug/l	54	54	97.158	154.49
	Copper	ug/l	52	51	650.88	1043.2
	PCBs ^A	ug/l	46	1	51.1	70
008	Fluoride, Tot.	mg/l	8	8	15.257	20.9
	Beryllium ^A	ug/l	8	8	7212.4	9880
	Copper	ug/l	8	8	1276	1748
	PCBs ^A	ug/l	2	0	--	--

Table 22. Effluent Data for Brush Wellman (Continued)

	Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
009	Fluoride, Tot.	mg/l	29	27	0.9506	1.5041
	Beryllium ^A	ug/l	29	22	35	48
	Copper	ug/l	28	26	52.962	85.808
011	Residue, Dis.	mg/l	162	162	8925	12227
	Ammonia (sum)	mg/l	53	53	4.0717	5.2877
	Ammonia (win)	mg/l	37	37	6.7419	9.1408
	Phos.-T P-Wet.	mg/l	77	77	0.4014	0.6214
	Cyanide, Tot.	mg/l	14	1	0.0219	0.03
	Cyanide, Amenable	mg/l	4	0	--	--
	Fluoride, Tot.	mg/l	162	162	11.996	15.369
	Barium	ug/l	21	21	30.1	35.313
	Beryllium ^A	ug/l	162	162	48.172	72.124
	Cadmium	ug/l	148	119	9.9	14
	Chromium, Hex.	ug/l	153	149	5.1796	7.4359
	Chromium, Tot.	ug/l	154	154	24.376	33.028
	Copper	ug/l	154	154	169.86	237.57
	Lead	ug/l	21	17	20	28
	Nickel	ug/l	154	154	105	144
	Silver	ug/l	83	83	34.557	42.407
	Chlorine, Tot. Res.	mg/l	52	0	--	--
014	Residue, Dis.	mg/l	23	23	10005	13542
	Ammonia (sum)	mg/l	6	6	70.518	96.6
	Ammonia (win)	mg/l	4	4	158.48	217.1
	Phos.-T P-Wet.	mg/l	22	20	1.256	1.6039
	Fluoride, Tot.	mg/l	23	23	23.899	32.36
	Beryllium ^A	ug/l	23	21	288.47	466.24
	Cadmium	ug/l	23	16	9.5	13
	Chromium, Hex.	ug/l	23	23	13.701	23.401
	Chromium, Tot.	ug/l	23	21	19.839	29.901
	Copper	ug/l	23	23	237.57	409.77
	Nickel	ug/l	23	23	90.979	120.12
	Silver	ug/l	17	17	17.731	21.252
	Cyanide, Free	mg/l	23	4	0.038	0.052
	Cyanide, Tot.	mg/l	23	1	0.019	0.026

Table 22. Effluent Data for Brush Wellman (Continued)

	Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
041	Residue, Dis.	mg/l	21	21	12452	15080
	Ammonia (sum)	mg/l	13	13	14.187	26.469
	Beryllium ^A	ug/l	23	22	67.941	115.51
	Cadmium	ug/l	20	14	10	14
	Chromium, Hex.	ug/l	20	20	6	8
	Chromium, Tot.	ug/l	20	20	23.503	34.468
	Copper	ug/l	18	18	155.93	204.55
	Nickel	ug/l	11	11	177.28	260.55
	Silver	ug/l	22	22	45	62
	Cyanide, Free	mg/l	2	0	--	--
042	Residue, Dis.	mg/l	23	23	12301	14837
	Ammonia (sum)	mg/l	10	10	4.9492	6.8581
	Ammonia (win)	mg/l	3	3	11.388	15.6
	Beryllium ^A	ug/l	23	23	54.1	85.767
	Cadmium	ug/l	19	15	10	14
	Chromium, Hex.	ug/l	19	19	5.7194	8.7889
	Chromium, Tot.	ug/l	19	19	25.466	36.218
	Copper	ug/l	19	19	160.32	213.18
	Nickel	ug/l	13	13	155.37	217.68
	Silver	ug/l	14	14	44.949	60.479
	Cyanide, Free	mg/l	1	0	--	--
043	Residue, Dis.	mg/l	16	16	12597	17110
	Ammonia (sum)	mg/l	6	6	56.721	77.7
	Ammonia (win)	mg/l	5	5	10.746	14.72
	Beryllium ^A	ug/l	16	15	175.87	321.86
	Cadmium	ug/l	15	14	11	15
	Chromium, Hex.	ug/l	16	16	6.6818	10.551
	Chromium, Tot.	ug/l	15	14	22.419	33.844
	Copper	ug/l	14	14	192.52	276.87
	Nickel	ug/l	16	16	142	195
	Silver	ug/l	16	16	42	57
	Cyanide, Free	mg/l	2	0	--	--

Table 22. Effluent Data for Brush Wellman (Continued)

	Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
044	Residue, Dis.	mg/l	14	14	12318	15747
	Ammonia (sum)	mg/l	5	5	16.622	22.77
	Ammonia (win)	mg/l	2	2	12.76	17.48
	Beryllium ^A	ug/l	15	15	48.986	86.839
	Cadmium	ug/l	15	13	11	15
	Chromium, Hex.	ug/l	14	14	8.5879	15.367
	Chromium, Tot.	ug/l	15	15	26.576	40.664
	Copper	ug/l	12	12	140.62	181.69
	Nickel	ug/l	15	15	153	210
	Silver	ug/l	15	15	32	44
	Cyanide, Free	mg/l	3	2	0.0876	0.12
045	Residue, Dis.	mg/l	22	22	12084	15888
	Ammonia (sum)	mg/l	4	4	47.45	65
	Ammonia (win)	mg/l	6	6	9.0447	12.39
	Beryllium ^A	ug/l	24	23	96.807	166.81
	Cadmium	ug/l	22	17	10	14
	Chromium, Hex.	ug/l	22	22	5.8721	9.169
	Chromium, Tot.	ug/l	22	21	21.527	30.322
	Copper	ug/l	22	22	276.45	467.3
	Nickel	ug/l	16	16	146.28	202.6
	Silver	ug/l	15	15	35.451	49.926
	Cyanide, Free	mg/l	5	0	--	--
046	Residue, Dis.	mg/l	50	50	10881	13495
	Ammonia (sum)	mg/l	11	11	57	78
	Ammonia (win)	mg/l	11	11	13.895	24.441
	Beryllium ^A	ug/l	69	58	93.979	142.43
	Cadmium	ug/l	54	49	7.3	10
	Chromium, Hex.	ug/l	53	53	6.832	10.364
	Chromium, Tot.	ug/l	53	53	21.902	30.2
	Copper	ug/l	54	54	161.69	233.87
	Nickel	ug/l	53	53	117	160
	Silver	ug/l	54	54	25	34
	Cyanide, Free	mg/l	13	2	0.4672	0.64

Table 22. Effluent Data for Brush Wellman (Continued)

	Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
OEPA or 2C DATA 002	Ammonia	mg/l	4	NG	78	107
	Nitrate & Nitrite	mg/l	1	1	23	31
	Chlorine, Tot. Res.	mg/l	1	1	0.09	0.12
	Aluminum	ug/l	1	1	498	682
	Antimony	ug/l	1	1	43	60
	Arsenic	ug/l	1	1	158	217
	Boron	ug/l	1	1	1086	1488
	Cobalt	ug/l	1	1	54	74
	Iron	ug/l	1	1	258	353
	Manganese	ug/l	1	1	154	211
	Molybdenum	ug/l	1	1	1629	2232
	Selenium	ug/l	1	1	149	205
	Zinc	ug/l	1	1	91	124
004	Ammonia	mg/l	1	1	3.6	5.0
	Aluminum	ug/l	1	1	543	744
	Barium	ug/l	1	1	118	161
	Iron	ug/l	1	1	1313	1798
	Lead	ug/l	1	1	15	21
	Zinc	ug/l	1	1	1448	1984
005	Ammonia	mg/l	1	1	2.3	3.1
	Nitrate & Nitrite	mg/l	1	1	10	14
	Aluminum	ug/l	1	1	1494	2046
	Iron	ug/l	1	1	3802	5208
	Lead	ug/l	1	1	54	74
	Zinc	ug/l	1	1	996	1364
006	Ammonia	mg/l	1	1	0.45	0.62
	Aluminum	ug/l	1	1	8147	11160
	Barium	ug/l	1	1	339	465
	Iron	ug/l	1	1	12673	17360
	Lead	ug/l	1	1	16	22
	Titanium	ug/l	1	1	498	682
	Zinc	ug/l	1	1	249	341

Table 22. Effluent Data for Brush Wellman (Continued)

	Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
007	Ammonia	mg/l	1	1	1.4	1.9
	Nitrate & Nitrite	mg/l	1	1	23	32
	Aluminum	ug/l	1	1	950	1302
	Barium	ug/l	1	1	407	558
	Boron	ug/l	1	1	249	341
	Iron	ug/l	1	1	1494	2046
	Zinc	ug/l	1	1	679	930
008	Ammonia	mg/l	1	1	3.6	5.0
	Aluminum	ug/l	1	1	5431	7440
	Barium	ug/l	1	1	403	552
	Cadmium	ug/l	1	1	19	27
	Cobalt	ug/l	1	1	91	124
	Iron	ug/l	1	1	7242	9920
	Lead	ug/l	1	1	33	45
	Titanium	ug/l	1	1	679	930
009	Zinc	ug/l	1	1	679	930
	Nitrate & Nitrite	mg/l	1	1	7.7	11
	Phosphorus	mg/l	1	1	0.5	0.7
	Chlorine, Tot. Res.	mg/l	1	1	0.09	0.12
	Aluminum	ug/l	1	1	2489	3410
	Barium	ug/l	1	1	389	533
	Iron	ug/l	1	1	3078	4216
	Manganese	ug/l	1	1	213	291
011	Zinc	ug/l	1	1	72	99
	Nitrate & Nitrite	mg/l	2	2	1221	1672
	Nitrite-N	mg/l	1	1	44	60
	Aluminum	ug/l	2	2	1498	2052
	Arsenic	ug/l	2	1	50	68
	Boron	ug/l	1	1	498	682
	Iron	ug/l	2	1	322	441
	Manganese	ug/l	2	2	61	84
	Mercury	ug/l	2	1	0.58	0.79

Table 22. Effluent Data for Brush Wellman (Continued)

	Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
011	Molybdenum	ug/l	1	1	679	930
	Potassium	ug/l	1	1	67890	93000
	Selenium	ug/l	2	1	136	186
	Strontium	ug/l	1	1	33311	45632
	Zinc	ug/l	2	2	139	190
	Bromochloromethane	ug/l	1	1	12	16
	Bromoform	ug/l	2	1	14	19
	1,2-Dichloroethane ^A	ug/l	2	1	3.9	5.4
	Tetrachloroethylene	ug/l	2	1	5.4	7.4

^A Carcinogen

NG The # >MDL was not given

Table 23. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum ^A
		Average				Maximum	
		Human Health ^A	Wildlife	Agri-culture	Aquatic Life ^A	Aquatic Life ^A	
Aluminum	ug/l	4500 ^B	--	--	--	--	--
Ammonia (sum)	mg/l	--	--	--	0.6	--	--
Ammonia (win)	mg/l	--	--	--	3.3	--	--
Antimony	ug/l	780	--	--	190 ^B	900 ^B	1800 ^B
Arsenic	ug/l	580	--	100	150	340	680
Barium	ug/l	160000	--	--	220 ^B	2000 ^B	4000 ^B
Beryllium	ug/l	130 ^c	--	100	48 ^B	410 ^B	820 ^B
Boron	ug/l	200000	--	--	950 ^B	8500 ^B	17000 ^B
Bromoform	ug/l	890 ^c	--	--	230 ^B	1100 ^B	2200 ^B
Cadmium	ug/l	730	--	50	5.1	13	26
Chlorine, Tot. Res.	ug/l	--	--	--	11	19	38
Chromium, Hex.	ug/l	14000	--	--	11	16	31
Chromium, Tot.	ug/l	14000	--	100	180	3800	7700
Cobalt	ug/l	--	--	--	24 ^B	220 ^B	440 ^B
Copper	ug/l	64000	--	500	20	33	67
Cyanide, Free	ug/l	48000	--	--	5.2	22	44
Cyanide, Tot.	ug/l	48000	--	--	--	--	--
1,2-Dichloroethane	ug/l	230 ^c	--	--	2000 ^B	9600 ^B	19000 ^B
Fluoride, Tot.	ug/l	--	--	2000	--	--	--
Iron	ug/l	--	--	5000	--	--	--
Lead	ug/l	190	--	100	21	400	790
Manganese	ug/l	61000	--	--	--	--	--
Mercury	ug/l	0.0031	0.0013	10	0.91	1.7	3.4
Molybdenum	ug/l	10000	--	--	110 ^B	2400 ^B	4700 ^B
Nickel	ug/l	43000	--	200	110	1000	2000
Nitrate & Nitrite	mg/l	--	--	100	--	--	--
PCBs	ug/l	.000026 ^c	--	--	--	--	--
Residue, Dis.	ug/l	--	--	--	1500000	--	--
Selenium	ug/l	3100	--	50	5	--	--
Silver	ug/l	11000	--	--	1.3	7.8	16
Strontium	ug/l	1400000	--	--	770 ^B	6900 ^B	14000 ^B
Tetrachloroethylene	ug/l	1800	--	--	53 ^B	430 ^B	850 ^B
Zinc	ug/l	35000	--	25000	260	260	520

^A Human Health and Aquatic Life criteria are Tier I unless otherwise indicated.^B Tier II criterion.^C Carcinogen

Table 24. Instream Conditions and Discharger Flow

Parameter	Units		Value	Basis
1Q10	cfs	annual	3.47	USGS gage #04195500, 1951-97 data
7Q10	cfs	annual	4.39	USGS gage #04195500, 1951-97 data
90Q10	cfs	annual	8.79	USGS gage #04195500, 1951-97 data
30Q10	cfs	summer	6.36	USGS gage #04195500, 1951-97 data
		winter	15.0	USGS gage #04195500, 1951-97 data
Harmonic Mean Flow	cfs	annual	32.8	USGS gage #04195500, 1951-97 data
Mixing Assumption	%	average	25	OAC 3745-2-05 A) 4) d)
Instream Temperature	°C	summer	23.30	USGS gage 04195600; 1334 values, 1968-80
		winter	1.10	USGS gage 04195600; 684 values, 1968-80
Instream pH	S.U.	summer	8.3	USGS gage 04195600; 1220 values, 1968-80
		winter	8.0	USGS gage 04195600; 442 values, 1968-80
Instream Hardness	mg/l	annual	251	STORET; 36 values, 0<MDL, 1985-94
Background Water Quality (ug/l)				
Aluminum			620	STORET; 80 values, 20<MDL, 3/1980-9/1994
Ammonia (sum)	mg/l		0.025	STORET; 84 values, 56<MDL, 6/1980-9/1994
Ammonia (win)	mg/l		0.14	STORET; 38 values, 5<MDL, 12/1980-2/1994
Arsenic			2	STORET; 81 values, 57<MDL, 4/1980-9/1994
Barium			0	No representative data available
Beryllium			0.46	STORET; 6 values, 4<MDL, 7/1994-9/1994
Boron			0	No representative data available
Cadmium			0.1	STORET; 133 values, 118<MDL, 3/1980-9/1994
Chlorine, Tot. Res.			0	No representative data available
Chromium, Hex.			0	No representative data available
Chromium, Tot.			15	STORET; 135 values, 130<MDL, 3/1980-9/1994
Cobalt			0	No representative data available
Copper			5	STORET; 138 values, 106<MDL, 3/1980-9/1994
Cyanide, Free	mg/l		0	No representative data available
Fluoride			0	No representative data available
Iron			820	STORET; 138 values, 2<MDL, 3/1980-9/1994
Lead			1	STORET; 193 values, 128<MDL, 3/1980-9/1994
Mercury			0	No representative data available
Molybdenum			0	No representative data available
Nickel			20	STORET; 123 values, 120<MDL, 3/1980-9/1994
Nitrate & Nitrite	mg/l		4.06	STORET; 194 values, 15<MDL, 3/1980-9/1994
PCBs			0	No representative data available
Residue, Dis.	mg/l		504	STORET; 70 values, 0<MDL, 3/1980-9/1994
Selenium			0	STORET; 21 values, 21<MDL, 7/1984-5/1994
Silver			0	No representative data available
Strontium			0	No representative data available
Zinc			15	STORET; 139 values, 70<MDL, 3/1980-9/1994
Brush Wellman flow			not available, see text	

Table 25. Summary of *Allowable Effluent Loads*^A to Maintain Applicable Water Quality Criteria at Critical Low Flows

Parameter (kg/d) ^A	Average			Aquatic Life	Maximum Aquatic Life
	Human Health	Wild-life	Agri Supply		
Aluminum	78	--	--	--	--
Ammonia (sum)	--	--	--	2.2	--
Ammonia (win)	--	--	--	29	--
Arsenic	12	--	2.0	0.40	0.72
Barium	3206	--	--	0.59	4.2
Beryllium, Tot.	2.6	--	2.0	0.13	0.87
Boron	4007	--	--	2.5	18
Cadmium, Tot.	15	--	1.0	0.013	0.027
Chlorine, Tot. Res.	--	--	--	0.029	0.040
Chromium, Hex.	280	--	--	0.029	0.034
Chromium, Tot.	280	--	1.7	0.44	8.0
Cobalt	--	--	--	0.064	0.47
Copper, Tot.	1282	--	9.9	0.040	0.059
Cyanide, Free	962	--	--	0.014	0.047
Fluoride, Tot.	--	--	40	--	--
Iron	--	--	84	--	--
Lead, Tot.	3.8	--	2.0	0.054	0.84
Mercury	0.000062	0.0000070	0.20	0.0024	0.0036
Molybdenum	200	--	--	0.29	5.1
Nickel, Tot.	861	--	3.6	0.24	2.1
Nitrate & Nitrite	--	--	1922	--	--
PCBs	0.00000052	--	--	--	--
Residue, Dis.	--	--	--	2670	--
Selenium	62	--	1.0	0.013	--
Silver, Tot.	220	--	--	0.0035	0.02
Strontium	28049	--	--	2.1	15
Zinc	701	--	501	0.66	0.52

^A Load is for entire Brush Wellman Facility.

Table 26. Summary of *Allowable Effluent Loads*^A to Maintain Applicable Water Quality Criteria at Various Stream Flows

Parameter (kg/d) ^A	Average			Aquatic Life	Maximum Aquatic Life
	Human Health	Wild-life	Agri Supply		
<u>Flow in Portage River at Woodville Gage: 15 cfs</u>					
Aluminum	41	--	--	--	--
Ammonia (sum)	--	--	--	6.1	--
Ammonia (win)	--	--	--	33	--
Arsenic	6.12	--	1.0	1.6	3.6
Barium	1693	--	--	2.3	21
Beryllium, Tot.	1.37	--	1.1	0.50	4.3
Boron	2116	--	--	10	90
Cadmium, Tot.	7.72	--	0.53	0.053	0.14
Chlorine, Tot. Res.	--	--	--	0.12	0.201
Chromium, Hex.	148	--	--	0.12	0.17
Chromium, Tot.	148	--	0.90	1.7	40
Cobalt	--	--	--	0.25	2.3
Copper, Tot.	677	--	5.24	0.16	0.30
Cyanide, Free	508	--	--	0.055	0.23
Fluoride, Tot.	--	--	21	--	--
Iron	--	--	44	--	--
Lead, Tot.	2.0	--	1.0	0.21	4.2
Mercury	0.000033	0.000014	0.11	0.0096	0.018
Molybdenum	106	--	--	1.2	25
Nickel, Tot.	455	--	1.9	0.95	10.37
Nitrate & Nitrite	--	--	1015	--	--
PCBs	0.00000028	--	--	--	--
Residue, Dis.	--	--	--	10540	--
Selenium	33	--	0.53	0.053	--
Silver, Tot.	116	--	--	0.014	0.083
Strontium	14815	--	--	8.15	73
Zinc	370	--	264	2.6	2.6

^A Load is for entire Brush Wellman Facility.

Table 26. Summary of *Allowable Effluent Loads*^A to Maintain Applicable Water Quality Criteria at Various Stream Flows (Continued)

Parameter (kg/d) ^A	Average			Aquatic Life	Maximum Aquatic Life
	Human Health	Wild-life	Agri Supply		
<u>Flow in Portage River at Woodville Gage: 30 cfs</u>					
Aluminum	82	--	--	--	--
Ammonia (sum)	--	--	--	12	--
Ammonia (win)	--	--	--	67	--
Arsenic	12	--	2.1	3.1	7.15
Barium	3386	--	--	4.7	42
Beryllium, Tot.	2.7	--	2.1	1.0	8.67
Boron	4233	--	--	20	180
Cadmium, Tot.	15	--	1.1	0.11	0.27
Chlorine, Tot. Res.	--	--	--	0.23	0.40
Chromium, Hex.	296	--	--	0.23	0.34
Chromium, Tot.	296	--	1.8	3.5	80
Cobalt	--	--	--	0.51	4.7
Copper, Tot.	1354	--	10	0.32	0.59
Cyanide, Free	1016	--	--	0.11	0.47
Fluoride, Tot.	--	--	42	--	--
Iron	--	--	88	--	--
Lead, Tot.	4.0	--	2.1	0.42	8.4
Mercury	0.000066	0.000028	0.21	0.019	0.036
Molybdenum	212	--	--	2.3	51
Nickel, Tot.	910	--	3.8	1.9	21
Nitrate & Nitrite	--	--	2030	--	--
PCBs	0.00000055	--	--	--	--
Residue, Dis.	--	--	--	21079	--
Selenium	66	--	1.1	0.11	--
Silver, Tot.	233	--	--	0.028	0.17
Strontium	29630	--	--	16	146
Zinc	740	--	529	5.2	5.2

^A Load is for entire Brush Wellman Facility.

Table 26. Summary of *Allowable Effluent Loads*^A to Maintain Applicable Water Quality Criteria at Various Stream Flows (Continued)

Parameter (kg/d) ^A	Average			Aquatic Life	Maximum Aquatic Life
	Human Health	Wild-life	Agri Supply		
<u>Flow in Portage River at Woodville Gage: 45 cfs</u>					
Aluminum	123	--	--	--	--
Ammonia (sum)	--	--	--	18	--
Ammonia (win)	--	--	--	100	--
Arsenic	18	--	3.1	4.7	11
Barium	5079	--	--	6.98	63
Beryllium, Tot.	4.1	--	3.2	1.5	13
Boron	6349	--	--	30	270
Cadmium, Tot.	23	--	1.6	0.16	0.41
Chlorine, Tot. Res.	--	--	--	0.350	0.600
Chromium, Hex.	444	--	--	0.35	0.51
Chromium, Tot.	444	--	2.7	5.2	120
Cobalt	--	--	--	0.76	7.0
Copper, Tot.	2032	--	16	0.48	0.89
Cyanide, Free	1524	--	--	0.17	0.70
Fluoride, Tot.	--	--	63	--	--
Iron	--	--	133	--	--
Lead, Tot.	6.0	--	3.1	0.63	13
Mercury	0.000098	0.000041	0.32	0.029	0.054
Molybdenum	317	--	--	3.5	76
Nickel, Tot.	1364	--	5.7	2.9	31
Nitrate & Nitrite	--	--	3046	--	--
PCBs	0.00000083	--	--	--	--
Residue, Dis.	--	--	--	31619	--
Selenium	98	--	1.6	0.16	--
Silver, Tot.	349	--	--	0.041	0.25
Strontium	44444	--	--	24	219
Zinc	1111	--	793	7.8	7.8

^A Load is for entire Brush Wellman Facility.

Table 26. Summary of *Allowable Effluent Loads*^A to Maintain Applicable Water Quality Criteria at Various Stream Flows (Continued)

Parameter (kg/d) ^A	Average			Aquatic Life	Maximum Aquatic Life
	Human Health	Wild-life	Agri Supply		
<u>Flow in Portage River at Woodville Gage: 60 cfs</u>					
Aluminum	164	--	--	--	--
Ammonia (sum)	--	--	--	24	--
Ammonia (win)	--	--	--	134	--
Arsenic	24	--	4.1	6.3	14
Barium	6772	--	--	9.3	85
Beryllium, Tot.	5.5	--	4.2	2.0	17
Boron	8466	--	--	40	360
Cadmium, Tot.	31	--	2.1	0.21	0.55
Chlorine, Tot. Res.	--	--	--	0.470	0.800
Chromium, Hex.	593	--	--	0.47	0.68
Chromium, Tot.	592	--	3.6	7.0	160
Cobalt	--	--	--	1.0	9.3
Copper, Tot.	2709	--	21	0.63	1.2
Cyanide, Free	2032	--	--	0.22	0.93
Fluoride, Tot.	--	--	85	--	--
Iron	--	--	177	--	--
Lead, Tot.	8.0	--	4.2	0.85	17
Mercury	0.000131	0.000055	0.42	0.039	0.072
Molybdenum	423	--	--	4.7	102
Nickel, Tot.	1819	--	7.6	3.8	41
Nitrate & Nitrite	--	--	4061	--	--
PCBs	0.00000110	--	--	--	--
Residue, Dis.	--	--	--	42159	--
Selenium	131	--	2.1	0.21	--
Silver, Tot.	466	--	--	0.055	0.33
Strontium	59259	--	--	33	292
Zinc	1481	--	1058	10	10

^A Load is for entire Brush Wellman Facility.

Table 26. Summary of *Allowable Effluent Loads*^A to Maintain Applicable Water Quality Criteria at Various Stream Flows (Continued)

Parameter (kg/d) ^A	Average			Aquatic Life	Maximum Aquatic Life
	Human Health	Wild-life	Agri Supply		
<u>Flow in Portage River at Woodville Gage: 125 cfs</u>					
Aluminum	342	--	--	--	--
Ammonia (sum)	--	--	--	51	--
Ammonia (win)	--	--	--	279	--
Arsenic	51	--	8.64	13	30
Barium	14109	--	--	19	176
Beryllium, Tot.	11	--	8.78	4.19	36
Boron	17637	--	--	84	750
Cadmium, Tot.	64	--	4.40	0.44	1.14
Chlorine, Tot. Res.	--	--	--	0.970	1.680
Chromium, Hex.	1235	--	--	0.97	1.41
Chromium, Tot.	1233	--	7.50	15	334
Cobalt	--	--	--	2.12	19
Copper, Tot.	5643	--	44	1.32	2.47
Cyanide, Free	4233	--	--	0.46	1.9
Fluoride, Tot.	--	--	176	--	--
Iron	--	--	369	--	--
Lead, Tot.	17	--	8.73	1.76	35
Mercury	0.00027	0.00011	0.88	0.080	0.15
Molybdenum	882	--	--	9.70	212
Nickel, Tot.	3790	--	16	7.94	86
Nitrate & Nitrite	--	--	8460	--	--
PCBs	0.0000023	--	--	--	--
Residue, Dis.	--	--	--	87830	--
Selenium	273	--	4.41	0.44	--
Silver, Tot.	970	--	--	0.11	0.69
Strontium	123456	--	--	68	608
Zinc	3085	--	2203	22	22

^A Load is for entire Brush Wellman Facility.

Table 26. Summary of *Allowable Effluent Loads*^A to Maintain Applicable Water Quality Criteria at Various Stream Flows (Continued)

Parameter (kg/d) ^A	Average			Aquatic Life	Maximum Aquatic Life
	Human Health	Wild-life	Agri Supply		
<u>Flow in Portage River at Woodville Gage: 220 cfs</u>					
Aluminum	602	--	--	--	--
Ammonia (sum)	--	--	--	89	--
Ammonia (win)	--	--	--	490	--
Arsenic	90	--	15	23	52
Barium	24832	--	--	34	310
Beryllium, Tot.	20	--	15	7.4	64
Boron	31040	--	--	147	1319
Cadmium, Tot.	113	--	7.7	0.78	2.0
Chlorine, Tot. Res.	--	--	--	1.7	3.0
Chromium, Hex.	2173	--	--	1.7	2.5
Chromium, Tot.	2171	--	13	26	587
Cobalt	--	--	--	3.7	34
Copper, Tot.	9932	--	77	2.3	4.3
Cyanide, Free	7450	--	--	0.81	3.4
Fluoride, Tot.	--	--	310	--	--
Iron	--	--	649	--	--
Lead, Tot.	29	--	15	3.1	62
Mercury	0.00048	0.00020	1.6	0.14	0.26
Molybdenum	1552	--	--	17	372
Nickel, Tot.	6671	--	28	14	152
Nitrate & Nitrite	--	--	14890	--	--
PCBs	0.00000404	--	--	--	--
Residue, Dis.	--	--	--	154581	--
Selenium	481	--	7.76	0.78	--
Silver, Tot.	1707	--	--	0.20	1.2
Strontium	217283	--	--	120	1071
Zinc	5430	--	3878	38	38

^A Load is for entire Brush Wellman Facility.

Table 27. Parameter Assessment

Group 1: Due to a lack of criteria, the following parameters could not be evaluated at this time. The facility may be required to generate toxicity data so that the parameters may be reevaluated.

<u>Outfall 002</u>	Phosphorous	
<u>Outfall 004</u>	Titanium	
<u>Outfall 005</u>	Titanium	
<u>Outfall 006</u>	Titanium	
<u>Outfall 008</u>	Titanium	
<u>Outfall 009</u>	Phosphorous	
<u>Outfall 011</u>	Bromochloromethane	Nitrite-N
	Phosphorus	Potassium
<u>Outfall 014</u>	Phosphorus	

Group 2: PEQ < 25% of WQS or all data below minimum detection limit; WLA not required. No limit recommended, monitoring optional.

<u>Outfall 002</u>	Aluminum	Antimony
	Cyanide, free	Cyanide, Tot.
	Nitrate&Nitrite	Residue, Dis.
	Lead	Manganese
	Iron	
<u>Outfall 004</u>	Aluminum	
<u>Outfall 005</u>	PCB's	Nitrate&Nitrite
<u>Outfall 007</u>	Aluminum	Nitrate&Nitrite
<u>Outfall 008</u>	PCB's	
<u>Outfall 009</u>	Manganese	Nitrate&Nitrite
<u>Outfall 011</u>	Aluminum	PCB's
	Barium	Bromoform
	Chlorine, Tot. Res.	Chromium, Tot.
	Cyanide, amenable	Iron
	Cyanide, Tot.	1,2-Dichloroethane
	Manganese	Tetrachloroethylene
	Residue, Dis.	Antimony
<u>Outfall 014</u>	Chromium, Tot.	Cyanide, Tot.
	Residue, Dis.	
<u>Outfall 041</u>	Chromium, Tot.	Cyanide, free
	Residue, Dis.	
<u>Outfall 042</u>	Cyanide, free	Residue, Dis.
<u>Outfall 043</u>	Cyanide, free	Chromium, Tot.
	Residue, Dis.	
<u>Outfall 044</u>	Residue, Dis.	Residue, Dis.
<u>Outfall 045</u>	Chromium, Tot.	Cyanide, free
	Residue, Dis.	
<u>Outfall 046</u>	Chromium, Tot.	Residue, Dis.

Table 27. Parameter Assessment (Continued)

Groups 3, 4 and 5 cannot be differentiated without an effluent flow value. Following are the group definitions and the parameters to be considered.

- Group 3: $PEQ_{max} < 50\%$ of maximum PEL and $PEQ_{avg} < 50\%$ of average PEL. No limit recommended, monitoring optional.
- Group 4: $PEQ_{max} > 50\%$ but $< 100\%$ of the maximum PEL or $PEQ_{avg} > 50\%$ but $< 100\%$ of the average PEL. Monitoring is appropriate.
- Group 5: Maximum $PEQ > 100\%$ of the maximum PEL or average $PEQ > 100\%$ of the average PEL, or either the average or maximum PEQ is between 75 and 100% of the PEL and certain conditions that increase the risk to the environment are present. Limit recommended.

Allowable Effluent Loads to Protect Numeric Water Quality Criteria at Low Flows

Parameter (kg/l)	Applicable Period	Allowable Effluent Loads ^B	
		Average	Maximum
Aluminum		78	--
Ammonia	(sum)	2.2	--
Ammonia	(win)	29	--
Arsenic		0.40	0.72
Barium		0.59	4.2
Beryllium ^A		0.13	0.87
Boron		2.5	18
Cadmium		0.013	0.027
Chlorine, Tot. Res.		0.029	0.040
Chromium, Hex.		0.029	0.034
Chromium, Tot.		0.44	8.0
Cobalt		0.064	0.47
Copper		0.040	0.059
Cyanide, Free		.014	.047
Residue, Dissolved		2670.	--
Fluoride		40	--
Iron		84	--
Lead		0.054	0.84
Mercury		0.0000070	0.0036
Molybdenum		0.29	5.1
Nickel		0.24	2.1
Nitrate & Nitrite		1922	--
PCBs ^A		0.00000052 ^A	--
Selenium		0.013	--

Table 27. Parameter Assessment (Continued)

Allowable Effluent Loads to Protect Numeric Water Quality Criteria at Low Flows

Parameter (kg/l)	Applicable Period	<u>Allowable Effluent Loads^B</u>	
		Average	Maximum
Silver		0.0035	0.017
Strontium		2.1	15
Zinc		0.66	0.52

^A This parameter must be included in calculations for additivity of carcinogens. However, the calculation is based on concentration, which cannot be calculated without an effluent flow. The additivity equation is constructed as follows:

$$\frac{\text{MAC for}^A}{\text{HH WLA}^A} + \frac{\text{MAC for}^B}{\text{HH WLA}^B} + \frac{\text{MAC for}^C}{\text{HH WLA}^C} + \frac{\text{MAC for}^D}{\text{HH WLA}^D} + \dots \leq 1.0$$

where A, B, C, ... are carcinogenic parameters as identified in Table 5.

^B Load is for entire Brush Wellman facility (all outfalls).

Table. 28 Final effluent limits and monitoring requirements for Brush Wellman outfall 2IE00000002 and 2IE00000014 and the basis for their recommendation.

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Annual Maximum	
Flow	MGD	----- Monitor -----				M ^c
Dissolved Solids	mg/l	--	21560	--	--	ABS/EP/BN
Suspended Solids	mg/l	--	41	--	300	ABS/EP, BPT
Ammonia-N	mg/l	--	133	--	900	ABS/EP/BN, BAT
Phosphorus	mg/l	----- Monitor -----				M ^c
Fluoride	mg/l	--	35	--	306	ABS/EP, BAT
pH	S.U.	----- 6.5 to 9.0 -----				WQS
Cyanide, Free	mg/l	----- Monitor -----				M ^c
Cyanide, Total	mg/l	--	0.20	--	1.23	ABS/EP, BAT
Beryllium, T.R.	µg/l	--	801	--	5.68	ABS/EP, BAT
Cadmium, T. R.	µg/l	--	26	--	--	WLA/IMZM
Chromium, T. R.	µg/l	--	46	--	2.30	ABS/EP, BAT
Hex. Chromium (Dissolved)	µg/l	--	17	--	--	ABS/EP
Copper, T. R.	µg/l	--	67	--	9.37	WLA/IMZM, BAT
Nickel, T. R.	µg/l	----- Monitor -----				M ^c
Silver, T. R.	µg/l	--	16	--	--	WLA/IMZM
Whole Effluent Toxicity Acute	TUa	--	1.0	--	--	WET

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b **Definitions:** ABS = Antidegradation Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); BAT = Best Available Control Technology Currently Available, 40 CFR Part 421, Non-ferrous Metals Manufacturing Category; BN = Biocriteria Narrative (OAC 3745-1-07(A)(6)); BPJ = Best Professional Judgment; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 421, Non-ferrous Metals Manufacturing Category; EP = Existing Permit; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WET = Whole Effluent Toxicity (OAC 3745-33-07(B)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 29. Final effluent limits and monitoring requirements for Brush Wellman outfall 2IE00000602 and the basis for their recommendation.

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	----- Monitor -----				M ^c
CBOD ₅	mg/l	10	15	—	—	PD/ABS/EP
Suspended Solids	mg/l	12	18	—	—	PD/ABS/EP
Color	Units	----- Observation -----				M ^c
Odor	Units	----- Observation -----				M ^c
Turbidity	Units	----- Observation -----				M ^c

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b **Definitions:** ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(I)); EP = Existing Permit; M = Monitoring; PD = Plant Design Criteria.

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 30. Final effluent limits and monitoring requirements for Brush Wellman outfalls 2IE00000004 and 2IE00000008 and the basis for their recommendation.

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
<i>Outfall 004</i>						
Flow	MGD	-----	Monitor	-----		M ^c
Fluoride, T.	mg/l	-----	Monitor	-----		M ^c
Beryllium, T.R.	µg/l	—	820	—	—	WLA/IMZM
Copper, T. R.	µg/l	—	67	—	—	WLA/IMZM
Zinc, T. R.	µg/l	-----	Monitor	-----		M ^c
PCBs	µg/l	-----	Monitor	-----		M ^c
<i>Outfall 008</i>						
Flow	MGD	-----	Monitor	-----		M ^c
Fluoride, T.	mg/l	-----	Monitor	-----		M ^c
Aluminum, T.R.	µg/l	-----	Monitor	-----		M ^c
Beryllium, T.R.	µg/l	—	820	—	—	WLA/IMZM
Cadmium, T.R.	µg/l	-----	Monitor	-----		M ^c
Copper, T. R.	µg/l	—	67	—	—	WLA/IMZM
Titanium, T. R.	µg/l	-----	Monitor	-----		M ^c
Zinc, T. R.	µg/l	-----	Monitor	-----		M ^c

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WET = Whole Effluent Toxicity (OAC 3745-33-07(B)) ; WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 31. Final effluent limits and monitoring requirements for Brush Wellman outfalls 2IE00000005 and 2IE00000007 and the basis for their recommendation.

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
<i>Outfall 005</i>						
Flow	MGD	-----	Monitor	-----		M ^c
Fluoride, T.	mg/l	-----	Monitor	-----		M ^c
Beryllium, T.R.	µg/l	-----	Monitor	-----		M ^c
Copper, T. R.	µg/l	—	67	—	—	WLA/IMZM
Zinc, T. R.	µg/l	-----	Monitor	-----		M ^c
<i>Outfall 007</i>						
Flow	MGD	-----	Monitor	-----		M ^c
Fluoride, T.	mg/l	-----	Monitor	-----		M ^c
Beryllium, T.R.	µg/l	-----	Monitor	-----		M ^c
Cadmium, T.R.	µg/l	-----	Monitor	-----		M ^c
Copper, T. R.	µg/l	—	67	—	—	WLA/IMZM
Zinc, T. R.	µg/l	-----	Monitor	-----		M ^c
PCBs	µg/l	-----	Monitor	-----		M ^c

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WET = Whole Effluent Toxicity (OAC 3745-33-07(B)) ; WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 32. Final effluent limits and monitoring requirements for Brush Wellman outfalls 2IE00000006 and 2IE00000009 and the basis for their recommendation.

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
<i>Outfall 006</i>						
Flow	MGD	-----	Monitor	-----	-----	M ^c
Fluoride	mg/l	-----	Monitor	-----	-----	M ^c
pH	S.U.	-----	6.5 to 9.0	-----	-----	WQS
Aluminum, T.R.	mg/l	-----	Monitor	-----	-----	M ^c
Beryllium, T.R.	µg/l	-----	Monitor	-----	-----	M ^c
Copper, T. R.	µg/l	—	67	—	—	WLA/IMZM
Titanium, T.R.	µg/l	-----	Monitor	-----	-----	M ^c
<i>Outfall 009</i>						
Flow	MGD	-----	Monitor	-----	-----	M ^c
Fluoride	mg/l	-----	Monitor	-----	-----	M ^c
pH	S.U.	-----	6.5 to 9.0	-----	-----	WQS
Beryllium, T.R.	µg/l	-----	Monitor	-----	-----	M ^c
Copper, T. R.	µg/l	—	67	—	—	WLA/IMZM

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(I)); AD = Antidegradation (OAC 3745-1-05); EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WET = Whole Effluent Toxicity (OAC 3745-33-07(B)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 33. Final effluent limits and monitoring requirements for Brush Wellman outfall 2IE00000011 and the basis for their recommendation.

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	----- Monitor -----				M ^c
Dissolved Solids	mg/l	13477	15881	—	—	BN
Suspended Solids	mg/l	30	45	—	—	ABS/EP/BPJ
Oil and Grease	mg/l	12	20	—	—	ABS/EP/BPJ
Ammonia-N	mg/l	—	13	—	—	ABS/EP/BPJ
Nitrate/Nitrite-N	mg/l	----- Monitor -----				M ^c
Phosphorus	mg/l	----- Monitor -----				M ^c
Fluoride	mg/l	—	16	—	—	ABS/EP/BPJ
pH	S.U.	----- 6.5 to 9.0 -----				WQS
Fecal Coliform	#/100ml	1000	2000	—	—	WQS
Chlorine, T.R.	mg/l	—	0.038	—	—	ABS/EP/WLA/IMZM
Beryllium, T.R.	µg/l	—	102	—	—	ABS/EP/BPJ
Cadmium, T. R.	µg/l	—	26	—	—	ABS/EP/BPJ
Chromium, T. R.	µg/l	----- Monitor -----				M ^c
Hex. Chromium (Dissolved)	µg/l	26	31	—	—	ABS/EP/BPJ; WLA/IMZM
Copper, T. R.	µg/l	—	67	—	—	WLA/IMZM
Nickel, T. R.	µg/l	----- Monitor -----				M ^c
Silver, T. R.	µg/l	—	16	—	—	WLA/IMZM
Whole Effluent Toxicity Acute	TUa	—	1.0	—	—	WET

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b **Definitions:** ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); BN = Biocriteria Narrative (OAC 3745-1-07(A)(6)); BPJ = Best Professional Judgment; EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (OAC 3745-33-07(A)); WET = Whole Effluent Toxicity (OAC 3745-33-07(B) or 40 CFR 132) ; WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 34. Final effluent limits and monitoring requirements for Brush Wellman outfall 2IE00000099 and the basis for their recommendation (Tier 1 - 801 flow >15 cfs but <30 cfs).

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	----- Monitor -----				M ^c
Dissolved Solids	mg/l	—	—	10540	13122	WLA, ABS/EP
Ammonia-N	mg/l					
Summer		—	—	2.68	—	ABS/EP
Winter		—	—	28.4	—	ABS/EP
Cyanide, Free	mg/l	—	—	0.055	0.233	WLA
Beryllium, T.R.	µg/l	—	—	0.5	4.33	WLA
Cadmium, T. R.	µg/l	—	—	0.04	0.137	ABS/EP, WLA
Chromium, T. R.	µg/l	—	—	0.90	40.1	WLA
Hex. Chromium (Dissolved)	µg/l	—	—	0.116	0.169	WLA
Copper, T. R.	µg/l	—	—	0.159	0.296	WLA
Nickel, T. R.	µg/l	—	—	0.95	10.37	WLA
Silver, T. R.	µg/l	—	—	0.014	0.083	WLA

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); BPJ = Best Professional Judgment; EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 35. Final effluent limits and monitoring requirements for Brush Wellman outfall 2IE00000099 and the basis for their recommendation (Tier 2 - 801 flow >30 cfs but <45 cfs).

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	----- Monitor -----				M ^c
Dissolved Solids	mg/l	—	—	21079	28616	WLA, ABS/EP
Ammonia-N	mg/l					
Summer		—	—	5.36	32.69	ABS/EP
Winter		—	—	56.84	212.69	ABS/EP
Cyanide, Free	mg/l	—	—	0.11	0.47	WLA
Beryllium, T.R.	µg/l	—	—	1.0	8.67	WLA
Cadmium, T. R.	µg/l	—	—	0.08	0.27	ABS/EP, WLA
Chromium, T. R.	µg/l	—	—	1.8	80	WLA
Hex. Chromium (Dissolved)	µg/l	—	—	0.23	0.34	WLA
Copper, T. R.	µg/l	—	—	0.32	0.59	WLA
Nickel, T. R.	µg/l	—	—	1.9	21	WLA
Silver, T. R.	µg/l	—	—	0.028	0.17	WLA

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b Definitions: ABS = Antidegradation Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(I)); AD = Antidegradation (OAC 3745-1-05); BPJ = Best Professional Judgment; EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 36. Final effluent limits and monitoring requirements for Brush Wellman outfall 2IE00000099 and the basis for their recommendation (Tier 3 - 801 flow >45 cfs but <60 cfs).

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	----- Monitor -----				M ^c
Dissolved Solids	mg/l	—	—	31619	42924	WLA, ABS/EP
Ammonia-N	mg/l					
Summer		—	—	8.04	46.69	ABS/EP
Winter		—	—	38.69	85.26	ABS/EP
Cyanide, Free	mg/l	—	—	0.17	0.70	WLA
Beryllium, T.R.	µg/l	—	—	1.5	13	WLA
Cadmium, T. R.	µg/l	—	—	0.12	0.41	ABS/EP, WLA
Chromium, T. R.	µg/l	—	—	2.7	120	WLA
Hex. Chromium (Dissolved)	µg/l	—	—	0.35	0.51	WLA
Copper, T. R.	µg/l	—	—	0.48	0.89	WLA
Nickel, T. R.	µg/l	—	—	2.9	31	WLA
Silver, T. R.	µg/l	—	—	0.041	0.25	WLA

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b Definitions: ABS = Antidegradation Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); BPJ = Best Professional Judgment; EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 37. Final effluent limits and monitoring requirements for Brush Wellman outfall 2IE00000099 and the basis for their recommendation (Tier 4 - 801 flow >60 cfs but <125 cfs).

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	----- Monitor -----				M ^c
Dissolved Solids	mg/l	—	—	42159	57232	WLA, ABS/EP
Ammonia-N	mg/l					
Summer		—	—	10.7	62.69	ABS/EP
Winter		—	—	113.68	425.69	ABS/EP
Cyanide, Free	mg/l	—	—	0.22	0.93	WLA
Beryllium, T.R.	µg/l	—	—	2.0	17	WLA
Cadmium, T. R.	µg/l	—	—	0.16	0.55	ABS/EP, WLA
Chromium, T. R.	µg/l	—	—	3.6	160	WLA
Hex. Chromium (Dissolved)	µg/l	—	—	0.47	0.68	WLA
Copper, T. R.	µg/l	—	—	0.63	1.2	WLA
Nickel, T. R.	µg/l	—	—	3.8	41	WLA
Silver, T. R.	µg/l	—	—	0.055	0.33	WLA

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b Definitions: ABS = Antidegradation Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); BPJ = Best Professional Judgment; EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 38. Final effluent limits and monitoring requirements for Brush Wellman outfall 2IE00000099 and the basis for their recommendation (Tier 5 - 801 flow >125 cfs but < 220 cfs).

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	----- Monitor -----				M ^c
Dissolved Solids	mg/l	—	—	87830	119233	WLA, ABS/EP
Ammonia-N	mg/l					
Summer		—	—	22.3	130.69	ABS/EP
Winter		—	—	236.83	881.69	ABS/EP
Cyanide, Free	mg/l	—	—	0.46	1.9	WLA
Beryllium, T.R.	µg/l	—	—	4.19	36	WLA
Cadmium, T. R.	µg/l	—	—	0.34	1.14	ABS/EP, WLA
Chromium, T. R.	µg/l	—	—	7.5	334	WLA
Hex. Chromium (Dissolved)	µg/l	—	—	0.97	1.41	WLA
Copper, T. R.	µg/l	—	—	1.32	2.47	WLA
Nickel, T. R.	µg/l	—	—	7.94	86	WLA
Silver, T. R.	µg/l	—	—	0.15	1.03	WLA

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b **Definitions:** ABS = Antidegradation Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); BPJ = Best Professional Judgment; EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 39. Final effluent limits and monitoring requirements for Brush Wellman outfall 2IE00000099 and the basis for their recommendation (Tier 6 - 801 flow greater than or equal to 220 cfs).

Parameter	Units	<u>Effluent Limits</u>				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	----- Monitor -----				M ^c
Dissolved Solids	mg/l	—	—	154581	209850	WLA, ABS/EP
Ammonia-N	mg/l					
Summer		—	—	39.3	230.69	ABS/EP
Winter		—	—	416.83	1560.69	ABS/EP
Cyanide, Free	mg/l	—	—	0.81	3.4	WLA
Beryllium, T.R.	µg/l	—	—	7.4	64	WLA
Cadmium, T. R.	µg/l	—	—	0.60	2.0	ABS/EP, WLA
Chromium, T. R.	µg/l	—	—	13	587	WLA
Hex. Chromium (Dissolved)	µg/l	—	—	1.7	2.5	WLA
Copper, T. R.	µg/l	—	—	2.3	4.3	WLA
Nickel, T. R.	µg/l	—	—	14	152	WLA
Silver, T. R.	µg/l	—	—	0.20	1.2	WLA

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b Definitions: ABS = Antidegradation Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(I)); AD = Antidegradation (OAC 3745-1-05); BPJ = Best Professional Judgment; EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 40. Final effluent limits and monitoring requirements for Brush Wellman monitoring station 2IE00000900 and the basis for their recommendation.

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Dissolved Solids	mg/l	-----	Monitor	-----	-----	M ^c
Ammonia-N	mg/l	-----	Monitor	-----	-----	M ^c
Nitrite-N	mg/l	-----	Monitor	-----	-----	M ^c
Nitrate/Nitrite-N	mg/l	-----	Monitor	-----	-----	M ^c
Cyanide, Free	mg/l	-----	Monitor	-----	-----	M ^c
Beryllium, T.R.	µg/l	-----	Monitor	-----	-----	M ^c
Copper, T. R.	µg/l	-----	Monitor	-----	-----	M ^c
Nickel, T. R.	µg/l	-----	Monitor	-----	-----	M ^c
Zinc, T. R.	µg/l	-----	Monitor	-----	-----	M ^c
PCBs	µg/l	**	**	—	—	ABS/EP

** No detectable concentration of PCBs.

^a Effluent loadings based on average design discharge flow of N/A MGD.

^b Definitions: ABS = Antidegradation Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); BPJ = Best Professional Judgment; EP = Existing Permit; IJC = 1988 revision of the 1972 Great Lakes Water Quality Agreement of the International Joint Commission; M = Monitoring; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Attachment A - Effluent Guideline Calculations for Outfall 002

Attachment - Effluent Guideline Calculations for Brush Wellman outfall 002/014

	BeO Process 421.152(e); 421.153(e) (lbs./million lbs. Be) Annual	BeO Production million lbs./year: 0.0895524	BeO Loading kg/year 209.308	Be Pebbles Process 421.152(g); 421.153(g) (lbs./million lbs. Be) Annual	Be Pebbles Prod. million lbs./year: 0.0582206	Be Pebbles Loading kg/year 90.215
TSS	5142		209.308	3409		90.215
Ammonia	15450		628.902	10240		270.990
Beryllium	97.57		3.972	64.68		1.712
Chromium	39.56		1.610	26.22		0.694
Copper	160.9		6.550	106.6		2.821
Cyanide, T.	21.1		0.859	13.98		0.370
Fluoride	5248		213.623	3479		92.068

Outfall 002/014 Annual Loading Limits

TSS	299.52
Ammonia	899.89
Beryllium	5.68
Chromium	2.30
Copper	9.37
Cyanide, T.	1.23
Fluoride	305.69

**Attachment B - Memorandum of Agreement between
Ohio EPA and U.S. EPA on GLI Implementation**



State of Ohio Environmental Protection Agency

STREET ADDRESS:

Lazarus Government Center
122 S. Front Street
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P.O. Box 1049
Columbus, OH 43216-1049

May 3, 2000

Mr. Francis X. Lyons
Regional Administrator
U.S. EPA Region V
77 West Jackson Blvd.
Chicago, Illinois 60604

Re: Water Quality Guidance for the Great Lakes System

Dear Mr. Lyons:

In letters from Water Division Director Jo Lynn Traub, dated June 30, 1999 and August 16, 1999, U.S. EPA summarized the results of its review of Ohio rules adopted pursuant to the federal Water Quality Guidance for the Great Lakes System. The letters concluded that parts of the rules are inconsistent with the Guidance and, therefore, must be revised. Over the past nine months our respective staffs have worked to resolve the inconsistencies. I have signed and enclosed two copies of a Memorandum of Agreement that will resolve three of the inconsistencies. If you concur with the agreement, please sign the copies and return one copy to me.

I am pleased that we were able to address these areas of inconsistency with the Guidance through the Memorandum of Agreement. However, I remain very concerned that U.S. EPA has consistently promoted Ohio's biological criteria approach to water quality, yet just as consistently objects to Ohio rules that seek to implement that approach. U.S. EPA's position on these rules would appear to contradict its desire for "innovation." If you would like to speak with me on this matter, please do not hesitate to call me at (614) 644-2702.

Sincerely,

Christopher Jones
Director

Enclosures

cc: Jo Lynn Traub, U.S. EPA Region V, Water Division
Lisa Morris, Chief, Ohio EPA, Division of Surface Water

CJ:drd

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Bob Taft, Governor
Maureen O'Connor, Lieutenant Governor
Christopher Jones, Director



**Addendum
to the
National Pollutant Discharge Elimination System
Memorandum of Agreement
Between the
State of Ohio
and the
United States Environmental Protection Agency, Region 5
Concerning Ohio's Great Lakes Water Quality Standards
and Implementation Procedures**

The federal Water Quality Guidance for the Great Lakes System (federal guidance), 40 CFR Part 132, contains the minimum water quality standards, antidegradation policies, and implementation procedures for the Great Lakes system to protect human health, aquatic life, and wildlife. The Great Lakes states and tribes were required to adopt provisions consistent with (as protective as) the federal guidance for their waters within the Great Lakes system. The Ohio Environmental Protection Agency (Ohio EPA) adopted Great Lakes system water quality standards and implementation procedures on October 16, 1997, and these rules became effective on October 31, 1997.

The United States Environmental Protection Agency Region 5 (U.S. EPA) and the Ohio EPA enter into this Addendum to their National Pollutant Discharge Elimination System (NPDES) Memorandum of Agreement to ensure that Ohio's rules concerning Great Lakes system water quality standards and implementation procedures are implemented in a manner that is consistent with the federal guidance.

A. Intake Pollutants - Noncontact Cooling Water

OAC 3745-33-07(A)(9)(a) provides Ohio EPA with discretion to impose a water quality based effluent limitation (WQBEL) for pollutants in discharges that are comprised of once-through noncontact cooling water in certain circumstances unless the permittee can demonstrate that the presence of the pollutant in the discharge is due solely to its presence in the once-through noncontact cooling water. Ohio EPA shall exercise its discretion under OAC 3745-33-07(A)(9)(a) to always require WQBELs based on an acute or chronic aquatic life, wildlife or human health Tier I criterion or Tier II value, or whole effluent toxicity requirements, whenever information is available to indicate that pollutants in a discharge will cause, or have the reasonable potential to cause, an exceedance of a Tier I criterion or Tier II value or whole effluent toxicity requirements unless the pollutants are due solely to their presence in the intake water. Ohio EPA shall make its reasonable potential determinations regarding pollutants added to cooling water based upon the level of the particular pollutant at issue in the entire discharge rather than simply the levels of the pollutants that are added to the cooling water.

B. Applicability of "Outside Mixing Zone Average Water Quality Criteria and Values" in Limited Resource Waters

In making NPDES permitting decisions, Ohio EPA will apply the 'Outside Mixing Zone Average' water quality criteria and values for the protection of aquatic life specified in OAC 3745-1-33, or site-specific modifications thereof, and the chronic whole effluent toxicity requirements in OAC 3745-2-09(A)(4), or site-specific modifications thereof, to all water bodies in the Great Lakes Basin including those designated as limited resource waters.

C. Discretionary authority of the Director of Ohio EPA under 3745-1-07(A)(6)(a)

OAC 3745-1-07(A)(6)(a) provides that:

"demonstrated attainment of biological criteria in a water body will take precedence over the application of selected chemical-specific aquatic life or whole-effluent criteria associated with these uses when the director, upon considering appropriately detailed chemical, physical and biological data, finds that one or more chemical specific or whole-effluent criteria are inappropriate."

In such circumstances, the rule provides two options for the director in establishing permit limits. Either the director or the permittee with the approval of the director may develop a site-specific water quality criterion, or the director may "proceed with establishing effluent limits consistent with attainment of the designated use."

Where there exists reasonable potential that a discharge will cause or contribute to an exceedance of a tier I criterion, tier II value or whole effluent toxicity criterion, and the conditions described in OAC 3745-1-07(A)(6)(a) apply, Ohio EPA will always include effluent limits in permits that are derived from and comply with the applicable criteria or values or site-specific modifications thereof. This agreement does not preclude Ohio EPA from applying alternative modeling techniques or alternative flows where these are supported by the available site-specific data in determining reasonable potential and deriving appropriate permit limits consistent with OAC 3745-2-05(A). This agreement does not apply to permitting decisions regarding WQBELs for pollutants listed in table 5 to 40 CFR 132.

[NOTES: 3745-2-05(A) STATES: "Alternative modeling methods (including, but not limited to, continuous simulation or probabilistic analyses) may be used at the discretion of the director if they are demonstrated to be appropriate and protective of applicable water quality criteria." WHERE THIS PROVISION IS INVOKED, OHIO EPA MAY USE THE FINDING OF ATTAINMENT OF BIOLOGICAL CRITERIA AS THE DEMONSTRATION THAT THE DEFAULT MODELING PROCEDURES ARE OVERLY CONSERVATIVE. IN ADDITION, 3745-2-05(A)(1)(g) STATES: "Alternative flows may be used at the director's discretion if the flow is as protective as those listed in this paragraph." THIS PROVISION

MAY BE USED AS THE BASIS FOR DEVIATING FROM DEFAULT STREAM FLOWS IF BIOLOGICAL DATA SHOW ATTAINMENT. THESE TWO PROVISIONS, PLUS OHIO'S MIXING ZONE PROVISIONS, MAY BE USED TO ADDRESS SITUATIONS WHERE THERE IS NO BASIS FOR A SITE-SPECIFIC CRITERION, BUT THE CONSERVATIVE MODELING ASSUMPTIONS MAY BE DRIVING A REASONABLE POTENTIAL OR PERMIT LIMIT DECISION.]

OHIO ENVIRONMENTAL PROTECTION AGENCY

By: Christopher Jones

Christopher Jones
Director

Date: 5/2/00

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 5

By: Francis X. Lyons

Francis X. Lyons
Regional Administrator

Date: 7/28/00